

**faul · coradi inc.**

27 FENNELL ST. SKANEATELES, N.Y. 13152

T. Nelson, Sys. Cons.

Box 3

Schooleys Mountain, N. J. 07870

Thank you for your interest in...

Codamatic

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The attached literature will give you the information you requested. Should you have further questions about your specific requirements, they can be answered by:

Howard W. Edminster  
55 Sokier Street  
Cohasset, Mass. 02025

L

CORADOGRAPH - CORADOMAT - DIGITIZING CODAMATIC

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PRINTED MATTER

**Faul·coradi INC.**  
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HERE IS THE INFORMATION YOU REQUESTED

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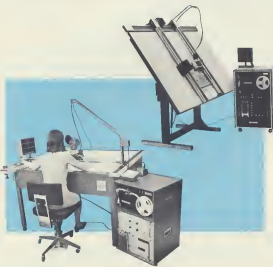
POSTMASTER: This parcel may be opened for postal inspection if necessary. Return postage guaranteed.

# faul · coradi: Equipment to Reckon with

For complete, fully edited, entirely *usable* instructions to your electronic N/C facilities...

## faul · coradi CODAMATIC

Digitizing/Recording Systems



"Point of Origin," our eight-page brochure, contains a useful answer to the question, "How Do You Talk to a Computer?" It, and our booklet, "Digitizing," provide detailed information on Codamatic Systems. May we send you both?

... automatically convert design drawings to numerical control data—recorded on punched or magnetic tape or punched cards—and ready for direct use by your

- Automatic Plotters
- N/C Production Machines (e.g., milling, routing, contouring, etc.)
- N/C Drilling Equipment

Eliminate 'language barriers'... and post-processing of graphic information by computer. Minimize operator error. Retro-fit to present N/C equipment.

EXPANDABLE: Start with a Codamatic DigiRail (right in photo) featuring dual Y Rail, rack-and-pinion encoding, grid round-off, scaling, X,Y and  $\pm$  reverse, 200-terminal patch board, event counter, automatic point marker and basic X,Y readout/recording for fast-and-accurate measuring/drawing/cutting.

OR start with a Codamatic Coradograph System (left in photo) with all the same features *plus* medium-fast-and-ultra-accurate measuring/drawing/cutting.

BOTH Systems provide storage for simultaneous on-the-fly readout and recording, plus a printed visual record if desired.

ADD modular step-up equipment as needed: • Full CRT display of data and/or graphics; search/erase/restatement capabilities • 3- or 4-axis recording: X,Y,Z; r $\theta$ ; r $\phi$  conversion to X,Y • Scale, perimeter, area, volume, other calculations.



## CUT ... DRAW ... MEASURE

with at least 10 times more speed and accuracy with the

## faul · coradi CORADOGRAPH

Conventional drafting equipment just can't compare with a Coradograph fitted with optional digital readout. While operating at more than 10 times the speed, it delivers: OVERALL ACCURACY of  $\pm 0.0008$ "; RESOLUTION of  $0.0001$ "; and REPEATABILITY to  $\pm 0.0004$ ".\*

Three-point suspension ensures the above precision: Constant guidewheel/guideway contact is maintained at three points, and is not sensitive to dirt.

A single factory-aligned tool-holder is guaranteed 100% accurate on delivery. Each instrument is auto-

matically centered when inserted. Microscope and any tool may be used alternately without adjustments.

The Nixie tube readout display is easy to read, and is kept under continuous check for accuracy by mechanical dials. The display is tied in electronically with optical encoders at the rack-and-pinion shafts.

\*Faul-Coradi Coradographs without digital readout yield the following accuracies: OVERALL ACCURACY— $\pm 0.001$ "; RESOLUTION— $0.0005$ "; REPEATABILITY— $\pm 0.0008$ ".

"Advantages and a Brief History of the Coradograph" is yours at the drop of a postcard to address shown at bottom of reverse side.

We service our equipment. / Representation from coast to coast.

# faul · coradi: Equipment to Reckon with

## faul · coradi CORADOMAT 21

NUMERICALLY CONTROLLED  
AUTOMATIC PLOTTER works to:

**Overall Accuracy**— $\pm 0.001''$ ; **Resolution**— $0.0004''$ ;  
**Repeatability**—within  $\pm 0.0008''$

### CAPABILITIES:

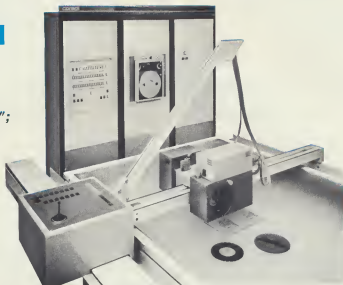
- N/C Drafting • Linear, Circular, Cubic Interpolation • Use of Different X and Y Scales Simultaneously
- Converting Graphics to N/C Data (via tapes or cards, plus page printer)

### CAPACITIES:

- Point of origin selection at will • Automatic data input and/or output • Manual data input via any keyboard • Automatic tool orientation

### OPERATING MODES (EIGHT):

- Pricking point (or N/C tool positioning, e.g., drill)
- Drawing with Rapidograph, pencil or ball-point
- Scribing on coated foil • Cutting of stripping foil



- Turret head with up to 5 different tools • Drawing/printing with light head • Automatic paper feed
- Measuring/recording

### TIME SHARING:

For free descriptive literature and information on time rental of a fully automatic CORADOMAT plotter, write us at address at bottom of this page.

## faul · coradi CORADICOM 330



For detailed information on the CORADICOM 330 System, write or phone the address or number shown below.

### High-Speed CRT System for Automatic Design, Drafting and Data Processing

#### *Edits . . . Verifies . . . Modifies Data Tapes*

. . . in a high-speed information exchange manner: Artwork designer can see his plot developed before him at 330 in./sec.—and at the same time get a microfilm hard copy positive for detailed study and verification.

The Coradicom 330 System is software-programmable and includes the following components: Digital Equipment Co. PDP8/L Computer; Ferranti Cathode Ray Tube Device MP40; Tektronix Model 611 Storage Display CRT; and Teletype ASR-33 Page Printer, Punch and Paper Tape Reader.

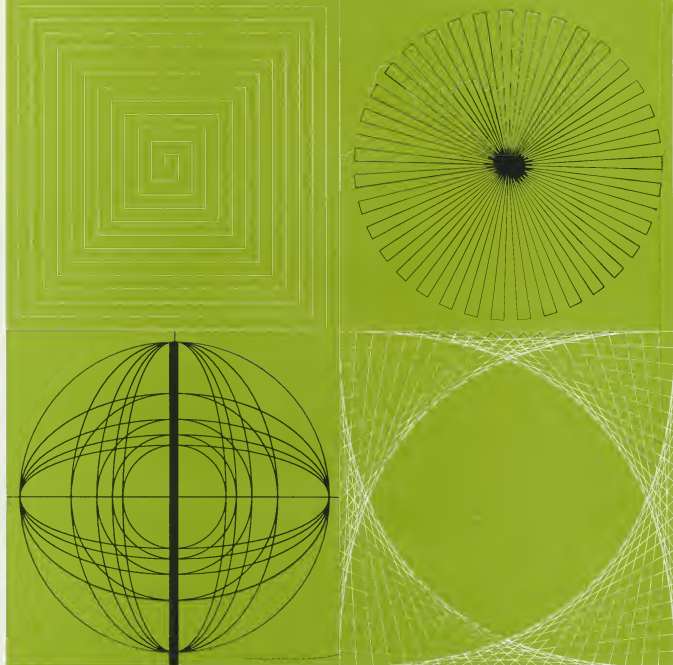
The System draws with linear, circular or cubic interpolation—or none. Plots A/N characters in upper and/or lower case, in two sizes. Directly digests data in 16-bit BCD, in EIA RS244 Code, or in ASCII Code, and post-processes such data to convert it from one format to another without manual re-write. Translates from code to code, with output in new code. Issues corrected, edited tape without splicing, permitting all corrections to be made within the memory of the computer.

faul · coradi INC.

27 Fennell St., Skaneateles, N.Y. 13152 U.S.A.

TEL. 315-685-5761

CABLE: Faul, Skaneateles, N.Y., U.S.A.



## **NEW DEVELOPMENTS**

OF

**FAUL**

**CORADI PRECISION EQUIPMENT**

**MANUAL & AUTOMATIC PLANIMETERS & COORDINATOGRAPHS**

# PLANIMETERS

HIGHEST QUALITY, DESIGNED FOR CONTINUOUS SERVICE-FREE INDUSTRIAL USE.

## CORA - JUNIOR

Eliminates wear by fully enclosed dustproof integrator housing. Measuring wheel is mounted in INCABLOCK SHOCKPROOF SAPPHIRE BEARINGS, built-in reading magnifier, complete with: tracing point or lens, calibration scale, elegant velvet lined leatherette case. Color: hammertone green. Twelve months guarantee.

Vernier Unit  
0.016 sq. in.  
Max. Area  
25.6" Dia.  
or  
19" x 7"  
Accuracy is  
Within Five  
Vernier Units



## CORA - SENIOR

HAS AUTOMATIC ZERO SETTING, INCABLOCK SHOCKPROOF SAPPHIRE BEARINGS, adjustable tracing arm, extendable pole arm, reading magnifier, tracing point or lens, block pole or needle pole, fully enclosed integrator, calibration scale, velvet lined case. Twelve months guarantee.

Vernier Unit  
0.016 to  
0.010 sq. in.  
Arm Graduated  
in mm.  
Max. Area  
25.6" Dia.  
or  
19" x 7"  
Accuracy Within  
Five  
Vernier Units



## SRP - ROLLING DISC

... is the latest model of these famous Core迪 Planimeters. Outstanding features are: (1) ten times stender accuracy, (2) measuring wheel runs on its own special spinning friction disc and is not subject to drawing material surface variation, etc., (3) can measure a 26 1/2" wide strip of infinite length, (4) fitted with tracing point or reading lens, (5) variable scale arm settings for direct reading, (6) simultaneous inch and metric calibration, (7) complete with fitted case and calibration scale, (8) one year guarantee.

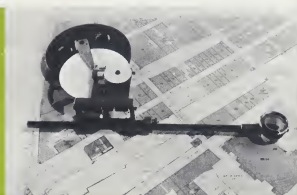
Work Area W x L  
Vernier Unit  
7" x Infinity  
.0008 sq. in.  
13 1/2" x Infinity  
.0016 sq. in.  
27 1/2" x Infinity  
.0032 sq. in.  
Accuracy Within  
Two Vernier Units



## SPP - POLAR DISC

... is also the latest refinement to the tried and true Core迪 Polar Disc Planimeters. Its purpose is high accuracy measurement of small to medium areas. (1) ten times accuracy, (2) measuring wheel is independent of drawing surface, (3) work area within 35" diameter, (4) tracing point or reading lens, (5) variable scale setting, (6) simultaneous inch and metric calibration, (7) complete with fitted case and calibration scale, (8) one year guarantee.

Work Area Dia.  
Vernier Unit  
21"D. .0016 sq. in.  
27"D. .0025 sq. in.  
35"D. .0040 sq. in.  
Accuracy Within  
Two Vernier Units



# CORADOGRAPHS

MANUAL AND DIGITAL READOUT COORDINATOGRAPHS



## STOCK SIZES AVAILABLE:

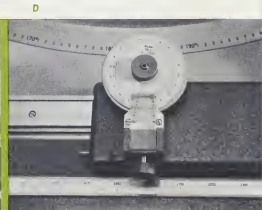
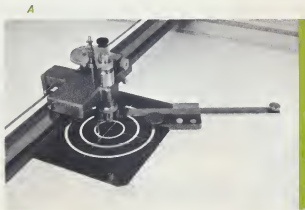
20", 32" & 48" square

32" dia. & 48" dia. polar rotary tables

64" x 52" & 79" x 52" rectangular

**THE CORADOGRAPH** is a unique XY High Precision Drawing Machine capable of drawing or observing (within  $\pm .0010"$ ) lines of exact width (within  $\pm .0002"$ ). CORADOGRAPHS can draw with pencil leads, ball points, inking ruling pens, inking Rapidograph pens, scribing needles, sapphires and diamonds, as well as single or double edged cut and peel knives. CORADOGRAPHS can read with a 5x or 10x sliding microscope, 7x pricker point microscope, 5x projection microscope. CORADOGRAPHS can be placed on any flat (within  $\pm .005"$  desirable) plotting surface. Simultaneous digital electronic readout with manual scale absolute measure is available as a Universal Conversion Kit.

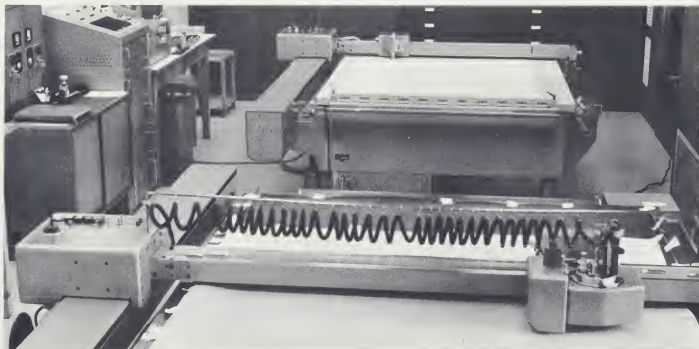
**AVAILABLE READY** to go onto Granit Aerial Plotter Tables, or onto Illuminated Glass Plotting Tables fitted with manual or digital readout/read-in, dials, tapes and electronics. (A) Beam Compass, (B) Universal knife/scribe holder, (C) Y carriage at X bear, (D) Readout dial and polar protractor.





# CORADOMATS

AUTOMATIC COORDINATOGRAPHS CAPABLE OF READING/WRITING.



E

(E) Two CORADOMATS at Prakla-Seismos, Hannover, Germany, automatically plotting oceanographic, seismic and aeromagnetic exploration data. No. 1 CORADOMAT was in operation over 8,000 hours during its first 16 months without any measurable wear. If compared to an automobile the CORADOMAT "travelled" 480,000 miles without change of accuracy. OBVIOUSLY A "SUPER ROLLS ROYCE" OF AUTOMATIC PLOTTERS. No. 2 CORADOMAT was delivered Sept. 65.

(F) RAPIDOGRAPH INKING PEN drawing section of a highway using linear interpolation and only start and end point line coordinate input data.

(G) FIVE CHANNEL PUNCHED PAPER TAPE reader supplies command data. Eight channel paper or mylar tape, IBM cards or magnetic tape as well as on-line computer inputs are available.

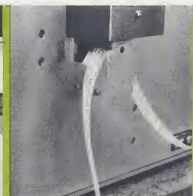
(H) FIVE STATION TURRET & 11 DIGIT PRINTER plotting survey lots while identifying all points by two 5 digit numbers and a central symbol. Both numbers and symbols have 11 possible changes and all are selected and printed simultaneously.

(I) MASTER CONTROL PANNEL contains all automatic as well as manual operation controls. Here we select scale, origin on the table as well as distant origin offset, select + or - for X & Y independently, etc., etc. All automatic controls have manual counterparts and all measures are based on absolute values. Incremental input is however possible with magnetic tape data input or with on-line computer operation.

F



G



H



I





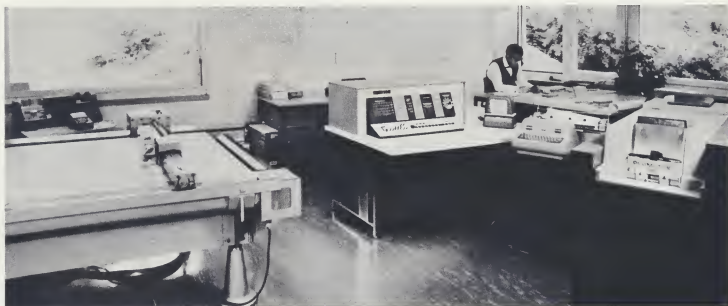


(upper left): Is a typical plot plan drawing done by a CORADOMAT as a result of aerial survey of a land and property valuation program.

(upper right): Is an automatic record of airplane paths and magnetic field density recorded automatically in an aircraft exploring deposits in Africa. These records flown to the head office are automatically plotted on the CORADOMAT and their significance is then visually evaluated.

(below): CORADOMAT installation at Digital A.G., Zurich, Switzerland being used for land survey as well as highway construction computer controlled design. The highway can be automatically drawn in a series of sections, say 10 meters apart showing to scale original land contour, base line reference, highway section correctly superimposed and an automatic typewriter writes all cut and fill information, cubic yards of concrete, steel, coordinate position, etc., etc., which data can then be attached to each section drawn.

**OTHER CORADOMAT INSTALLATIONS IN OPERATION:** State Land Survey, Switzerland; State Land Survey, Austria; State Land Survey, France; Ship Construction Lofting, Denmark; Mathematical Research, Switzerland; Highway Construction, Germany; Land Survey, Israel; Highway Mapping, Spain; Solid Circuit Photomasks, U. S. A.; and Photogrammetry Applications in Germany, France, Holland and Switzerland.



CONTACT: SOLE LICENSED NATIONAL DISTRIBUTORS & U. S. MANUFACTURERS OF FAUL/CORADI EQUIPMENT:

**faul · coradi inc.**

27 FENNEL ST. SKANEATELES, N.Y. 13152 • (315) 685-5761 • CABLE: FAUL SKANEATELES, N.Y.

Printed in U.S.A. - FLP

**DIGITIZING  
BY**

**faul · coradi**

## ADVANTAGES OF COORDINATE DIGITIZING SYSTEMS BY FAUL/CORADI

### **Codamatic Digirail Digitizer:**

**A. Drawing Board, Desk & Chair** — *Honeycomb and formica construction* ensures that drawing surface lays flat and remains clean and straight, is light and possesses low inertia so that rapid repositioning of the board is facilitated.

*Pneumatic counterbalance allows* board with Digirail to be moved effortlessly in one *simultaneous motion* from 3° off horizontal low position to 10° off vertical high position and any intermediate location. A *positive single and simultaneous locking action* by foot pedal fixes board in any selected position.

*Working, Sitting, or Standing* — data can be digitized while the operator is *seated or standing* as the *entire work area* can be comfortably readied in either mode.

*Digirail Desk* — furnished with the system is specially designed to fit beside the board in a L arrangement containing an *OFFSET DRAWING DRAWER, PENCIL DRAWER, and a FULL HEAVY DUTY FILE DRAWER ON BALL BEARING SLIDES.*

*Digirail Chair* — the special chair provided with the Digirail has full posture adjustments to fit operator, can be raised and lowered easily, *TILTS FORWARD FOR LEAN INTO WORK* attitude avoiding fatigue of operator's legs while leaning forward for extended periods. Cloth cover allows body to breathe.

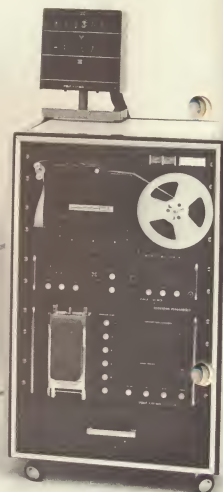
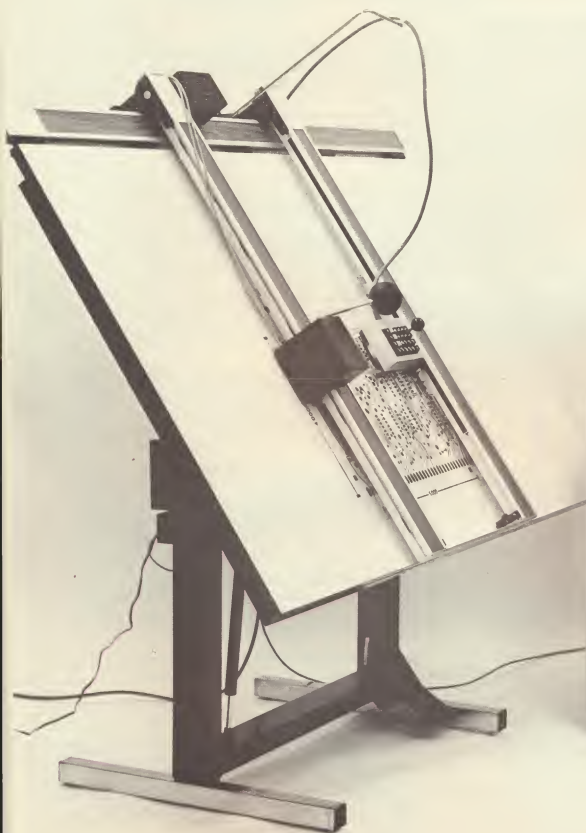
**B. The Digirail Dual Track Coordinate Digitizing Machine** — exceptional rigidity and stability is assured through the use of two vertical beams connected at the top on a common X carriage and at the bottom joined by a cross-beam. This allows the operator to lean on the two beams without causing digitizing error or deflection. Faster and surer position is accomplished by using a two hand/arm opposing effort.

*Unique Transparent Crosshair with Keyboard and Dotter Bridge* — A single transparent bridge spans between the two vertical beams and joins two Y carriages each of which is individually counterbalanced by a recessed weight running inside the hollow box section beams and connected to the Y carriage by dual dacron cables that ride over two dual track ball bearing wheels. This feature allows for perfect balance in any position without adjustment.

The transparent bridge will not obstruct the view of the drawing to be digitized. It carries the auxiliary keyboard for special data insertion and selective program function; and the Digidotter point marker which places a dot, of the magic marker type, in selected color at every point where data was recorded during the digitizing process.

This allows the operator to place a thin sheet of transparent vellum over the drawing being digitized and, by marking each point, the operator sees what has been digitized.

A sapphire faced 3X lens magnifier with light gathering feature is also included and is used for more precise positioning where the Digidotter is not required. The sapphire face resists wear and scratching of viewer lens. A red ring is marked in the lens face to allow exact location of any grid crossing through the placement of the red ring over the grid cross. This is the fastest and surest way to position on two intersecting lines.



*Rack and Pinion Drive with Optical, Shaft Encoder* — Super-accurate CORADOGRAPH type racks are held with special spring clamps in a T slot of the X and Y beams in such a manner that thermal expansion and contraction of the aluminum beams does not force a length change in the all important racks.

A gear drive option is available which permits digitizing in Metric measure through the exchange of a single gear at each encoder head. Three gears are provided, 80 tooth, 100 tooth and 127 tooth, allowing special measure digitizing.

The sensitive encoder discs are fully enclosed in sealed housings ensuring that dirt, smoke and dust fibers do not cause a loss of increment count.

The rack and pinion drive completely eliminates slippage, of inertia, during rapid positioning as plagues all band or wire drive systems. Also, no fatigue factor is present to cause band or wire failures. This drive method is also superior to linear grating encoding methods because it is lighter, is not subject to dirt or damage and is not sensitive to alignment variations.

**ALL RACKS ARE ONE PIECE SPECIAL ALLOY RACKS WITH 25 TEETH PER INCH PITCH.**

*Beam Lift Up Feature* — The Dual beams may be lifted as much as 30" to allow placement of drawings on the board without causing strain or change of accuracy.

*Resolving Power and Accuracy* — The resolving power is .001" or .01 mm as the case may be. Overall accuracy of the system is  $\pm .005"/40"$  of travel. The use of our grid roundoff feature eliminates digitizing error, and allows the operator to be as much as  $\pm .049"$  off position in all directions.

*Locking of X or Y Axis* — Either or both X and Y axis may be locked at operator's request.

**C. Codamatic Electronic System** — A completely modular approach is the basis of this electronic system design. All modules are compatible and may be added as desired.

*Every Codamatic System Accepts Equally Digirail or CORADOGRAPH Coupling* — either the Digirail or the CORADOGRAPH can input data to the Codamatic electronics by single switch selection on the Multiplexer.

*Two Mega Hertz Integrated Logic System* — the entire system is designed to scale, count and round off values at a 2 Mega Hertz rate and is built of fully integrated logic.

*Expandable Dual Axis Counter Modules* — the counter modules can be expanded to the following extra features:

X and Y to 5 digit with sign preset thumbwheel switches.

X and Y grid roundoff in lots of .010, .025, .050, or .100 inch grids by individual switch selection for each axis.

X and Y scaling in ratios of 1:1, 2:1, 4:1, 5:1, 10:1, 20:1 and 50:1 without division of encoder pulses, i.e., WITHOUT LOSS OF RESOLVING POWER. Scaling is digital within the logic.

X and Y to 6 digits with sign; allowing 0.0001" readout on CORADOGRAPHS.

*Expandable, five program Recording Programmer* — The recording programmer module has five separate programs, each may be separately released to output a particular sequence.

*Rack and Pinion Drive with Optical, Shaft Encoder* — Super-accurate CORADOGRAPH type racks are held with special spring clamps in a T slot of the X and Y beams in such a manner that thermal expansion and contraction of the aluminum beams does not force a length change in the all important racks.

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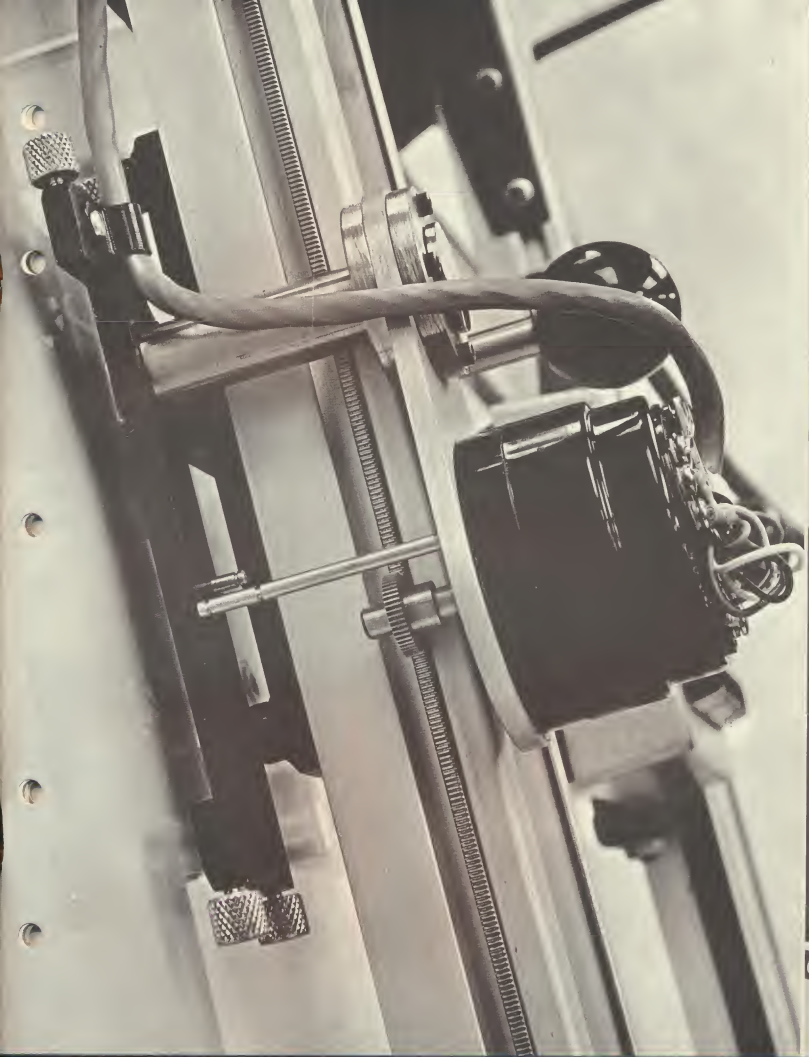
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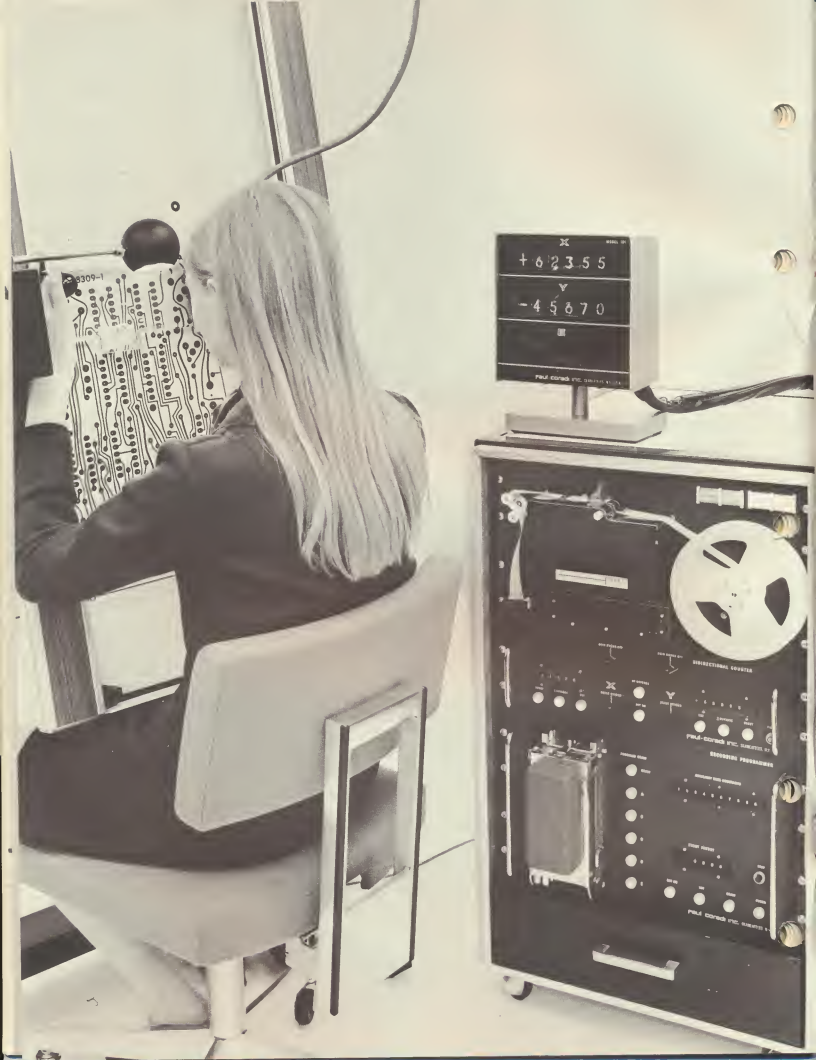
X and Y to 6 digits with sign; allowing 0.0001" readout on CORADOGRAPHS.

*Expandable, five program Recording Programmer* — The recording programmer module has five separate programs, each may be separately released to output a particular sequence.









A 200 terminal patchboard with fixed data characters selects program sequences of output data. Patchboard may be exchanged at will.

Ten thumbwheel switches used to preset numerals into data sequences are on the front panel of the recording programmer. These give any single program patchboard more flexibility without re-programming.

*Patchboard Control of Output* — can be so arranged that either absolute or chainlink data output is available, without loss of measure from position to position. The patchboard contains the following function capabilities:

- Sign of X, Y & Z
- Digit of X, Y & Z
- Chainlink X, Y & Z
- Hold X, Y & Z
- Sign Hold X, Y & Z
- Stop
- Start Program Memory A, B, C, D, E
- Program 1, 2 and 3
- Data output via: Foot switch, keyboard, auxiliary
- Event Count: Step, Event Decade 1,2, 3, 4, 5, 6
- Ten address letters, D, G, I, J, M, N, T, X, Y, Z
- Sign + and —
- Constants, K1, K2 ..... K19, K20
- Buss Bars, four with four connects each
- Asterisk, carriage return, line feed

**Program Memory Sequence:**

- A - - - - 1 to 15
- B - - - - 0, 1, to 15
- C - - - - 0, 1, to 15
- D - - - - 0, 1, to 15
- E - - - - 0, 1, to 15

All the above functions may be interconnected at will.

*Two, Three or Four Tier "Nixie" Visual Displays* — a portable visual display with a 20, 22, 30 or 32 foot connecting cable is provided and may be plugged into any counter.

The display is expandable from 5 digits with sign to 6 digits with sign at any time and from 4 to 5 or 6 digits of event.

A two tier display is available for X Y readout only not including event.

A three tier display is available for X Y and Event.

A four tier display is available for X Y Z and Event.

*CORADOGRAPH Display* — The display mounts on any of four 1/2" posts at the end of each CORADOGRAPH beam, and may be turned to any convenient viewing position desired.

*Digirail Display* — A separate table pedestal is provided for placing the display on the Digirail Desk.

*Auxiliary Keyboards* — are provided for selective data output, constants input and automatic mode sequencing for NC machines.

The following keyboards are available:

24-key for general digitizing

320-key for mapping digitizing

Universal for automatic mode programming as needed for fully processed tapes or output to operate automatic NC machine tools or automatic drafting machines such as the CORADOMAT 15, CORADOMAT 21 and all Gerber plotters as well as others.

THIS ADDITION TOGETHER WITH THE CODAMATIC SYSTEM FULLY LIBERATES THESE PLOTTERS AND ELIMINATES POST PROCESSING OF DIGITIZER OUTPUT.

*Output Devices* — should be chosen to output at rates in excess of 40 characters per second, the operator can position and record one coordinate position every  $\frac{3}{4}$  of a second. Therefore, the device should record in  $\frac{2}{3}$  of a second or better. As most coordinate records are 20 to 24 characters long, a device of 40 to 60 cps is advisable for best performance rate.

The standard available devices are:

Teletype ASR 33 Page Printer, paper tape punch and tape reader, 8 channel ASCII code, 10 cps. (Not recommended for high speed digitizing) (See above)  
Invac Paper Tape Punch, with supply and takeup reels, 60 cps, 8 channel, ASCII or RS-244 (Friden Code) (Other codes on special request)

Digi Data Magnetic Tape Recorder, IBM compatible, supply and takeup reels, 7 or 9 channel, 556 or 800 BPI, 200 cps, incremental recorder.  
IBM 526 Card punch/printer 80 column cards.

*Cathode Ray Tube Display and Arithmetic Repeat Function Capability* — The Codamatic system is designed to expand into a CRT display programmer and to have a disc type computer added to it for special repeat or program functions.

Please advise us in detail of your requirements so that we can recommend the best module arrangement to accomplish your work in a fast and economical manner.

Our staff is at your disposal and a full set of equipment is at all times available to you at our facilities in SKANEATELES, NEW YORK for your men to operate and experiment on.





## faul · coradi inc.

27 FENNELL STREET, SKANEATELES, NEW YORK 13152 ■ (315) 685-5761 ■ CABLE: FAUL SKANEATELES, NEW YORK ■ TWX#710-542-0627  
G. CORADI AG, ZÜRICH, SWITZERLAND ■ CORADO GRAPHICS LTD, TORONTO, CANADA ■ FAUL-CORADI SCOTLAND LTD, HADDINGTON, U.K.

# POINT OF ORIGIN

... for automatic  
conversion of  
design drawings  
to numerical  
control data

faul · coradi  
DigiRail  
**CODAMATIC**



## The DigiRail CODAMATIC

solves these problems for you

### PROBLEM

**Post-processing, editing, rephrasing** of graphic information by computer to make it fully ready for your numerically controlled machine.

**Operator errors** are frequent when numerous instructions must be given an N/C system to perform all desired tasks in the proper sequence. Most operators find it tiring and difficult to include all required statements in the proper place . . . hour after hour . . . day after day. E.G.: `CRLFG02X+123456Y-123456I-123J1234DO1` must be said to draw a circle clockwise, or, `CRLFG01X+123456Y123456DO1` must be said to draw a straight line from point to point. A single-digit error or omission in either statement results in costly machine error, and possibly a part loss.

(Jot down any other problems in space below)

### SOLUTION

The DigiRail CODAMATIC issues completely edited data—ready for your automatic drafting machine or N/C machine tool. There is no need for further editing or processing by a computer. Operator error is prevented because there is no need for double, triple or quadruple punching of buttons at each coordinate level.

With the DigiRail CODAMATIC all the operator does is set up the original routine appropriate to the action being recorded. A switch selection sets up that routine on a keyboard. From then on, for each coordinate point and instruction, the operator presses the foot pedal or data button to record complete, edited data for the N/C machine. And that is all he does. Prevention of error is further assured by the Codamatic's built-in ability to issue a warning signal, whenever erroneous instructions are set up on the program selection keyboard.

PROBLEM

SOLUTION BY FAUL/CORADI

# DigiRail CODAMATIC

## (A Sample System)

NOTES

**A NO-WARP HOLLOW-CORE BOARD** of high-strength honeycomb construction. For full description, see "Articular" Pg. 8.

**B X RAIL** with full-length actuating strip for horizontal lock and release. Precision-ground (to  $\pm 0.0005"$ ) hard-coated ways, closed box-section for rigidity, accuracy. Four large, precision, ball-bearing carriage wheels of stainless steel for light action, zero play. No compensating springs.

**C DUAL Y RAILS — A FAUL/CORADI EXCLUSIVE**—insure complete rigidity and stability through "box construction" effect produced by bottom bar and Plexi bridge: Result is solid, needle-point accuracy. Operator may rest arms



on rails for ease of movement and ready access to keyboard, magnifier, and X and Y rail-locks. This results in easy positioning, less fatigue.

**D PLEXI BRIDGE WITH MAGNIFIER**—Clear acrylic plastic bridge connecting the Dual Y rails serves as support for measuring head components. Mounted upon it are the Command Keyboard, and a 3X Magnifier with optional bull's-eye, or, cross hair and ring, or cross and ring with automatic point marker. Magnifier bottom surface is of sapphire jewel to resist scratching, and maintain clarity.

**E COMMAND KEYBOARD**—A 20-key Keyboard—located within easy view and reach—is the operator's entry to the encoding and recording systems. It rides with the measuring head for easy control at any position on the drafting surface. It directs the output system(s) for such commands as "down tool," "up tool," "light on," "light off"; line width; flash aperture selection on automatic artwork generators. For N/C machine tools, commands may be entered such as "drill down," etc., or which drill is to be actuated (e.g. "TO1," "TO2," etc.). Commands may also be issued to milling, profile and contouring machines.

**F OPTICAL SHAFT ENCODERS**—One for each axis of measurement. Each Encoder operates

on rack-and-pinion principle, which maintains 100% absolute accuracy, with no possibility of gain or loss. At 4X setting, Encoder generates 2000 counts for each 360° shaft rotation. FAUL/CORADI Codomatic, reads out 2" per turn of shaft (or 0.001" increments of resolution). Other resolutions of 1X and 2X may be selected at will.

**G X, Y DISPLAYS AND COUNTERS**—One counter is required for each axis of measurement: available in ranges  $\pm 00.000"$  to  $\pm 99.999"$ , or  $\pm 000.000"$  to  $\pm 999.999"$ , or in values and scales as specified. Fully bi-directional and direction-sensing, permitting use of counters of differing values and scale combinations. Thumb switches select a preset reference origin, or a separate push button resets to zero. Encoder resolving-power selector chooses 500 ppt @ 1X, 1000 ppt @ 2X, or 2000 ppt @ 4X. Storage is provided for on-the-fly readout and recording without stopping. In-line decimal readout employs long-life Nixie tubes with Polaroid filter. Counters have BCD output.

**H RECORDING PROGRAMMER**—The Programmer serializes the readout data and the preset constants, digit by digit, in a preselected order and format, and delivers it to the output device(s). A patchboard controls the data arrangement.

**I PATCH-BOARD**—This primary governing element of the Programmer provides selective structuring of the order and format the Output is to follow. The self-contained 200-terminal Patch Board supplies complete flexibility in pre-selecting any possible combination of output data available. A number of Patch Boards may be interchanged for one system.

**J RECORDING DRIVER INTERFACE & BUFFER**—Controls the actions and timing of the recording device(s).

**K L M N RECORDING DEVICES**—Depending on your requirements, options include recorders for (K) Magnetic Tape, (L) Punched Paper Tape, (M) Punched Cards—each by itself, or in combination with (N) Page Printer (automatic typewriter).

**O IMPORTANT OPTIONAL ACCESSORY: GRID ROUND-OFF**—A Grid Round-Off or Recognition capability may be included with original equipment. This feature greatly increases the speed/accuracy with which the operator may measure and record. Available to him through switches are grids of zero, or .010", .025", .050" and .100". Continuous display of XY values appears on the X,Y Coordinate Counters while work is in progress. Each counter has its own grid control.

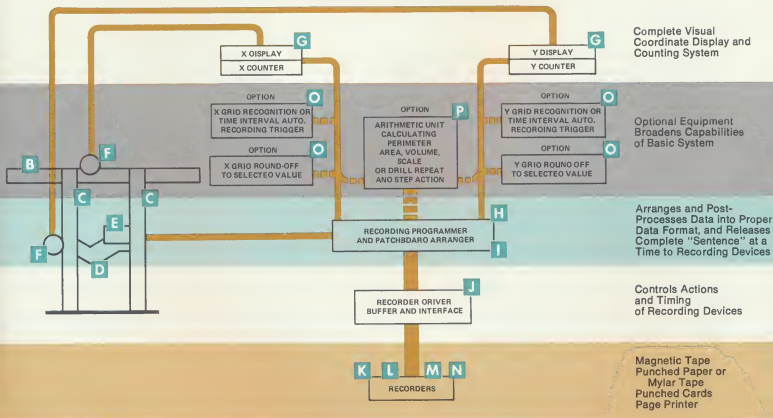
**P PERIMETER, AREA, VOLUME & SCALE, DRILL STEP-AND-REPEAT** calculating capability is available as an optional additional feature.

PATCH BOARD



# DigiRail **CODAMATIC** System Components

A Fourth-Generation Integrated Circuit System



- A** **Articular Table**—Universal equipment. (For full description and sizes, see Pg 8)
- B** **C** **X Rail and Dual Y Rail**—DigiRail Track Recorder. Size combinations to match table sizes.
- D** **Plexi Bridge with 3 Choices of Cursor**: 1) 3X magnifier with circle; 2) 3X magnifier with cross hair and circles; 3) Cross hair with automatic point marker.
- E** **Command Keyboard**—20, 40 or 200-key Keyboard arranged to suit system purpose.
- F** **Optical Shaft Encoders**—500, 1000 or 2000 parts-per-turn Optical Shaft Encoders, as desired. Rack-and-pinion driven.
- G** **X,Y Displays and Counters**—5, 6 or 7 digits, with or without  $\pm$  sign, BCD output.
- H** **Recording Programmer**—suited specifically to your N/C machine, and programmable.
- I** **Patch Board**—arranges program output to suit your purpose.
- J** **Recording Driver Interface and Buffer**—stores output and governs Recorders.
- K** **L** **M** **N** **Recorders**—as may be needed to suit your in-house systems.
- O** **P** **Arithmetic Functions**—such as Grid Round-off, Grid Recognition, Perimeter, Area, Volume and Scale Conversion are available as required.

For models available, see current Price List.

NOTES

faul · coradi

# DigiRail CODAMATIC

... a flexible precision facility for converting graphic information into numerical data which is visually displayed while work is in progress. In addition, it provides for:

1. Variable program data output.
2. Expandability to three- or four-axis recording.
3. Page-printed data output, with or without simultaneously punched paper tape or cards, or magnetic tape recording.
4. Grid round-off, grid recognition, or automatic time interval recording.
5. Expandability for scale, perimeter, area and other arithmetic data calculations.

NOTES

A few typical uses for the *DigiRail CODAMATIC* are the programming and digital conversion of

- ☐ Drawings
- ☐ Schematics
- ☐ Gridded design sketches (e.g., circuitry)
- ☐ Mapping and building ... plot layout
- ☐ Graphic arts ... tabular forms
- ☐ Automotive, aircraft and ship lofting
- ☐ Numerical control drill tapes
- ☐ Numerical control machine tapes
- ☐ Numerical control artwork generators
- ☐ Statistical data
- ☐ Medical chart analysis
- ☐ Recorder chart analysis
- ☐ Atomic film trace measurement
- ☐ Reduction of existing graphic information to numerical data for compact storage





# How do you talk to a computer?

A computer (or more broadly, an **electronic N/C system**) is capable of doing astonishing things—if we speak to it in its own language.

To do so, we don't have to know how or why it works. We can leave that to computer engineers.

What we do have to know is how to tell it what we want, in a way it can understand. Otherwise, its powerful, swift and tireless capabilities stand ready, but unused.

## Language Expert

The DigiRail Codamatic stands as a translator between the graphic information and the electronic system: It translates graphic information from terms that are familiar to the operator into terms that are

familiar to the N/C system—in an alpha-numeric code which the system can understand and act upon.

Following are typical samples of four types of command "sentences" which may be issued by the DigiRail Codamatic to the N/C ("Numerical Control") system of the FAUL/CORADI ("Automatic Plotter"). The Coradomat is the latest development in automatic drafting machines and artwork generators. (**NOTE:** the FAUL/CORADI Coradomat is used here for the sake of example only. In actual practice, the DigiRail Codamatic may be used with any N/C system you may wish to digitize for, whether it is controlling an automatic drafting machine or an automatic machine tool.)

## Dealing with a Computer on Its Own Terms

Computer language, is, like our own, made up of "words" and "sentences." They may be defined as follows:

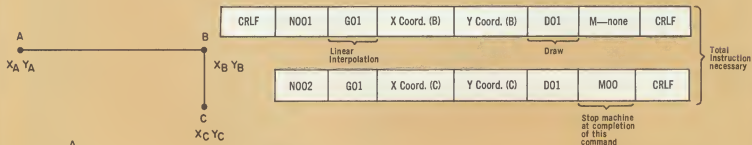
**WORDS:** An N/C control computer's "vocabulary" commonly has 20 specific words, or less. Its vast capacity for storing and reissuing commands depends on the great range of values which the operator may assign to each word. For example, the "X" word is the value of the X coordinate; the "G" word is the Master Action Command, e.g. "Draw with circular interpolation in the counter-clockwise direction." Now, that's a mouthful, but in computer language, it's a word . . . "GO3" . . . and that's all you need to say.

**SENTENCES:** A complete sentence, called a "data portion", may look like this, *before* values have been assigned to each word:

Opening Word (1st Sentence Only)	Second Word	Third Word	Fourth Word	Fifth Word	Sixth Word	Seventh Word	Closing Word
CRLF	N000	G00	X ± 00.00	Y ± 00.00	D00	M00	CRLF
Carriage Return Line Feed or Asterisk	Sequence Count	Master Action Command	X Coordinate	Y Coordinate	DO Command	Machine Basic Command	Carriage Return Line Feed or Asterisk

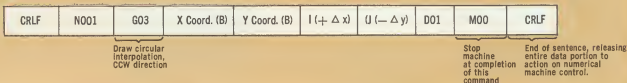
### SAMPLE #1: Linear Interpolation

We are at Point A. We want to draw a line to B, then on to C.



### SAMPLE #2: Circular Interpolation

We are at Point A. We want to draw an arc to B, with radius R, in the counter-clockwise direction.

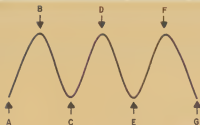


If you can  
digitize  
a drawing . . .

YOU OR  
WE CAN  
DRAW IT!

The examples shown below pertain only to the FAUL/CORADI Automatic Plotter . . . an advanced concept in automatic drafting and artwork generation: the Coradomat 15 and 21.

Inquire about our Time-Sharing Plan for the FAUL/CORADI Automatic Plotter. We can deliver finished artwork in ink, scribed, cut-and-peel, drilled, photoprinted or photo-drawn—using your punched paper tape only.



### SAMPLE #3: Cubic Interpolation

We are at Point A. We wish to draw a smooth, cubic-order curvature through Points A to G.

**KEYBOARD** Defined words are dumped into memory and will be released in conjunction with first data point: it is recorded as part of the first sentence only.

1st Sentence

CRLF	G04	P	Q	R	S	M (if any)	T (if any)	D01	N001	X Coord. (B)	Y Coord. (B)	CRLF
	Cubic Interpolation	Scale, rotation, origin preset and inversion parameters	Machine Control	Subroutine control	These data words are automatically released by DigiRail Codomatic as data switch or foot pedal is pressed.							

2nd Sentence

N002	X <sub>b</sub>	Y <sub>b</sub>	CRLF
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3rd Sentence

N003	X <sub>c</sub>	Y <sub>c</sub>	CRLF
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4th Sentence

N004	X <sub>d</sub>	Y <sub>d</sub>	CRLF
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Drafting will begin after this sentence has been stated and the memory of the Coradomat 21 Automatic Plotter has four facts with which to interpolate a cubic curvature.

5th Sentence

N005	X <sub>e</sub>	Y <sub>e</sub>	CRLF
------	----------------	----------------	------

6th Sentence

N006	X <sub>f</sub>	Y <sub>f</sub>	M00	CRLF
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When Point G is reached, drafting will stop and machine will be shut off by signal M00.

### SAMPLE #4: No Interpolation (e.g., Coradomat 15 program)

As used for point-to-point marking, drilling, or pricking.

We are at origin and wish to mark four points, A through D.

CRLF	N001	G00	X <sub>a</sub>	Y <sub>a</sub>	D03	M (if any)	CRLF
------	------	-----	----------------	----------------	-----	------------	------

No interpolation. Go to next coordinate at fastest possible rate (shortest distance)

Mark on completion of positioning (Need not, but can be, repeated with each sentence)

1st Sentence to locate A.

\*Keyboard defined words

2nd Sentence to locate B.

N002	X <sub>b</sub>	Y <sub>b</sub>	CRLF
------	----------------	----------------	------

3rd Sentence to locate C.

N003	X <sub>c</sub>	Y <sub>c</sub>	CRLF
------	----------------	----------------	------

4th Sentence to locate D.

N004	X <sub>d</sub>	Y <sub>d</sub>	CRLF
------	----------------	----------------	------

Whenever the foot or hand switch is actuated, all except the keyboard defined words are auto-

matically recorded by the DigiRail Codomatic at each coordinate position.

# Articular Gravity-Free, Fully Articulated Drafting Table

... Sturdy base of operations  
for the DigiRail CODAMATIC



Specially suited forward tilt posture chair is also available.



Between the original graphic information and the digitizing of that information, there is an area of operator activity requiring high degrees of mechanical stability and accuracy-with-speed: *the measuring surface*. In the DigiRail Codamatic system, the requirements for this surface are fulfilled by the Articular Drafting Table. Operator comfort and ease of movement (which translate into accuracy and speed) are insured by a pair of pneumatic counterpoise cylinders and springs, working in conjunction with a

parallelogram brake system: Together, they permit positioning of the platform surface at a limitless number of heights and angles—with a light touch of the hand, and a slight movement of the foot for unlocking or locking position. The platform angle is adjustable at any position from 3° off horizontal to 12° off vertical. Optimum lightness with strength is provided by the honeycomb construction of the non-warping board.

## ARTICULAR SPECIFICATIONS.

### BOARD SIZE

72" x 44" overall

### WORK AREA SIZE

56½" x 40¾" net work area

### DRAWING BOARD

Satin finish formica dove gray surfaces; self-edged, wood frame and paper honeycomb construction.

### SUPPORT STAND

- Welded steel frame, charcoal black
- Bolt on chrome satin feet with Non-Skid levelling pads
- Pneumatic counterbalance
- Parallelogram support system
- Any position positive lock with pedal action
- Free motion friction control
- 12° off vertical to 3° off horizontal free combined height and angle motion

### ARTICULAR CHAIR

Contemporary styling, seat & back rest covered in Cadet Blue Genspun cloth, polished cast aluminum base with casters, adjustable for height, tilt & backrest position. Forward tilt for digitizing ease.

Manufactured and distributed by:

**faul · coradi inc.**

27 Fennell St., Skaneateles, N.Y. 13152 U.S.A.

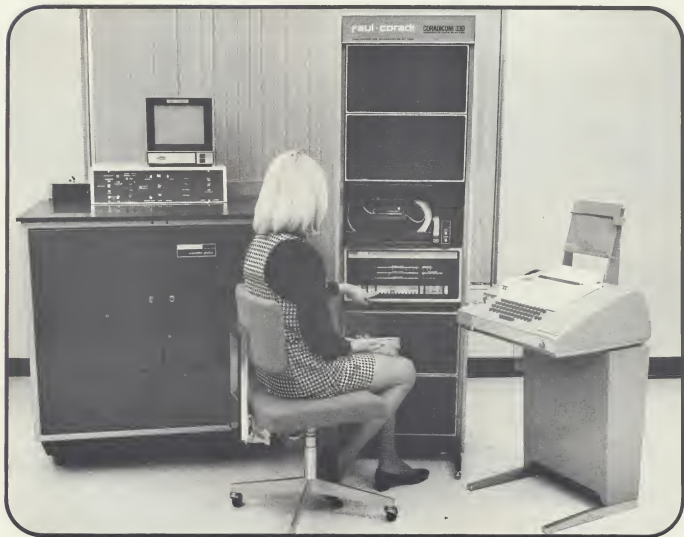
TEL. 315-685-5761

CABLE: Faul, Skaneateles, N.Y., U.S.A.

Representation from Coast to Coast

# CORADICOM 330 SYSTEM

FOR HIGH SPEED PLOTTING,  
EDITING, CORRECTION AND  
VERIFICATION OF N/C DATA



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### **WHAT IS CORADICOM 330?**

CORADICOM 330 is a high speed plotting, editing and verification system which is software programmable and which can output a finished microfilm aperture card positive at a drawing speed of 330" per second or 19,800" per minute! (Approximately 150 times faster than a mechanical automatic plotter). The CORADICOM 330 System will issue corrected, edited data without splicing

or manual handling of tapes, permitting all corrections to be made within the memory of the system. While these corrections are being made they can be instantly drawn and viewed as well as recorded. Only a corrected final tape is recorded when all visual confirmation is complete.

The microfilm aperture card and the correct tape can now be forwarded to final machining or plotting center to assure and guide N/C operator during the final use of this data.

### IS IT USEFUL?

If you prepare tapes to input to N/C equipment — if you accept tapes from outside your department or company to program your N/C machines — if you find that costly errors in the tapes result in wasted materials and loss of valuable time, the CORADICOM 330 will liberate you. If you dread the costly process of locating errors in your data and correcting them, with the possibility of new and similar manually introduced errors occurring, the CORADICOM 330 System is the answer you've been seeking!

In many phases of modern industry, Numerical Control equipment has been widely accepted as a real shortcut to the finished product, saving time and money through greater efficiency, speed and accuracy. The CORADICOM 330 System can give you greater efficiency in preparation and editing of the tapes or cards which program these machines, in turn making your N/C equipment even more valuable to production. Or, if your final step is an aperture card positive, this System produces these cards with astounding speed and accuracy for immediate detailed study and verification. Negative aperture cards can be also produced for normal projection printing using a simple contact printer accessory.

### THE CORADICOM 330 SYSTEM CONSISTS OF:

- High Resolution CRT Microfilm Plotter
- General Purpose Computer
- CRT Storage Display Viewer
- Communications Console
- High Speed Paper Tape Reader
- High Speed Paper Tape Punch

The High Speed Tape Reader reads a tape in ASCII, EIA RS-244 or Binary Octal Format at a



Loading Aperture Cards into the Microfilm Plotter

rate of 150 c.p.s. and stores the information in the computer memory. The operator then outputs the stored information through the CRT Microfilm Plotter and visually studies the plot, formed at a rate of 330" per second, on the CRT Storage Display. The operator may view the plot on the display and simultaneously prepare an aperture card positive through the plotter, or view the display without preparing an aperture card.



Taking Aperture Card Positives from the Microfilm Plotter

### EDITING TAPES

Any data on the tape which is illegal or unacceptable to your N/C System is automatically printed out on the Teletype and coded as Error 1, Error 2, etc., for study and correction. In this manner, errors of data format, arrangement and sequence are automatically found by the System for correction. You may return to the point of the error in the computer memory and manually type the correction through the Page Printer and simultaneously enter it in the computer memory.

Errors of fact in the plotting commands on the tape such as a line to a wrong point or no line where there should be one are visually found by the operator on the display. Errors of fact may be corrected through selective sequence-to-sequence plotting in the same manner as errors which have been automatically found by the System.

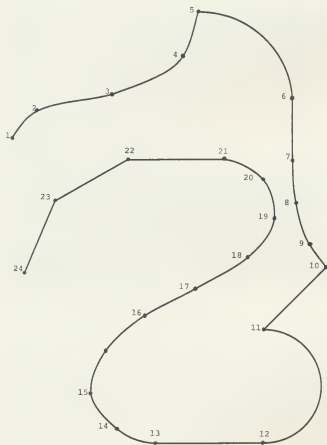
Corrections are made and entered via teletype in the computer memory and, as indicated above, all errors are quickly found and corrected. A very long tape can be read, edited, corrected, verified and repunched, a section at a time.

After all errors have been corrected in the computer memory, a new tape is punched. The corrected tape may be converted from ASCII or Octal code to EIA RS-244 or vice versa. The computer can be programmed to make other code conversions as required by your facility.



## INTERPOLATION MODES AND CHARACTER GENERATION

The System can draw with linear, circular or cubic interpolation, as well as plot alpha numeric characters, both upper and lower case in two sizes, automatically spaced and aligned.



Sample plot which could be drawn with system indicating use of Cubic, Linear, and Circular Interpolation from Point to Point.

Points	Interpolation
1- 5	Cubic
5- 6	Circular
6-10	Cubic
10-11	Linear
11-12	Circular
12-13	Linear
13-21	Cubic
21-24	Linear

### CHARACTER SET

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
1234567890

° ( ) ' " , . : ; ! ? + - \* > < / = £ # 1 8 x o □ ▲



Operator shown removing fix solution from storage compartment



Refilling supply of Fix Solution in the plotter

## AVAILABLE SOFTWARE

Various software programs are available as required; for example,

**FEPLLOT PROGRAM** — Feplot is a program designed to use the computer as a medium to read paper tape prepared for the on line microfilm plotter. FEPLLOT simulates an off-line situation where the paper tapes in Ferranti plotter format are read in by a paper tape reader interfaced directly to the microfilm plotter. FEPLLOT eliminates the need for a separate on line tape reader and interface, and uses the computer tape reader instead.

FEPLLOT is mainly an input-output program. It reads the input paper tape through a high speed or low speed paper tape reader and outputs on-line to the microfilm plotter. The input character code has to be in ASCII and the format must conform to the Ferranti Plotter format. No data of any kind is stored or operated upon, hence there are not any error diagnostics included except for the program fault light in the Microfilm Plotter itself.

**CORFER-21-CU PROGRAM** — CORFER-21-CU is a conversion program designed to allow direct use of punched paper tape object programs prepared for Faul-Coradi CORADOMAT 21 Digital Plotters to run on Ferranti Microfilm Plotters. It contains a cubic interpolation routine to supplement the linear and circular interpolation routine to supplement which is built into the Microfilm Plotter. The program converts the language and format of the CORADOMAT 21 input tape to the language and format required by the Microfilm Plotter.

CORFER-21-CU reads the input paper tape through either the low speed Teletype reader or a high speed reader and stores the information in a buffer section of the computer core memory. This buffer occupies all of the core space not taken up by the routine itself. The input character code can be either to EIA Spec. RS-244 A or ASCII and the input data can either be absolute or incremental. An ERROR DIAGNOSTIC routine has been included to check for illegal instructions.

**CORFER-21 PROGRAM** — CORFER-21 is a conversion program designed to allow punched paper tape object programs prepared for Faul-Coradi CORADOMAT 21 Digital Plotters to run on Ferranti Microfilm Plotters. The program converts the language and format of the CORADOMAT 21 input tape to the language and format required by the microfilm plotter.

CORFER-21 reads the input paper tape through either the low speed Teletype reader or a high speed reader and stores the information in a buffer section of the computer core memory. This buffer occupies all of the core space not taken up by the routine itself. The input character code can be either to EIA Spec. RS-244 A or ASCII and the input data can either be absolute or incremental. An ERROR DIAGNOSTIC routine has been included to check for illegal instructions.

**CORFER-15 PROGRAM** — CORFER-15 is a conversion program designed to allow punched paper tape object programs prepared for Faul-Coradi CORADOMAT 15 Digital Plotters to run on Ferranti Microfilm Plotters. The program converts the language and format of the CORADOMAT 15 input tape to the language and format required by the Microfilm Plotter.

CORFER-15 reads the input paper tape through either the low speed Teletype reader or a high speed reader and stores the information in a buffer section of the computer core memory. This buffer occupies all of the core space not taken up

by the routine itself. Input character code can be either to EIA Spec. RS-244 A or ASCII and the input data can either be absolute or incremental. An ERROR DIAGNOSTIC routine has been included to check for illegal instructions.

## BASIC SOFTWARE CAPABILITY

The CORADICOM 330 is equipped with Software programs which enable it to digest data in 16 bit Binary coded decimal in EIA RS-244 Code or in ASCII Code, as well as post process such data to convert it from one automatic plotter format to another without any manual re-write on the part of the operator. The System is also capable of translating from one code to another and simultaneously duplicating such information on an output device in the new code desired.

Special programs can be written to automatically handle your exact N/C tape format regardless of special features, provided the effect desired can be simulated on the CORADICOM 330 XY screen.

## SYSTEM SPECIFICATIONS

### Company:

FAUL-CORADI, INC., 27 Fennell St.,  
Skaneateles, N. Y.

### Model:

CORADICOM 330 SYSTEM

### Type:

A/N; Graphic

### Computer:

PDP8/L

### Input:

On Line; Off Line

Mag. Tape — 200/556/800 bpi 7-or-9-track

Punched Paper Tape

Punched Cards

### Film Output:

35mm Cards with automatic processor or 16 or  
35mm Roll Film without processor

Max. Image Area — 1.6" x 1.2"

### Characters:

EIA-RS244, ASCII, BCD

Sizes — 2

Number — Any

Orientation — Any Angle (software generated)  
0° (hardware generated)

Method of Generation — Incremental Plotting

#### **Plotting Rates (per sec.):**

Points — 120,000

Vectors — 450

Characters — 450 (hardware generated) with line speed (software generated)

#### **Operating Features:**

Min. Line Width — 0.001"

Spot Positions — 4096 x 4096 units

Resolvable Elements — 21840 x 21840

Forms Overlay — Slide; Programmable

Monitor — 6" x 8"

Resolution — On 24" x 16" Blowup, is 0.002"

#### **Special or Optional Features:**

Options include memory expansion to 12K, 12 Bit, additional camera, tape and disc drive, off line film processor or negative aperture card camera and processor, special character software for direct use of CORADOMAT, Ferranti, Gerber, and other automatic plotter data tapes, image rotation, infinite scaling, mirror image and double inversion, distant or off-set origin selection, absolute or incremental data input, odd or even parity selection, automatic selection of two basic line widths, multiple exposure capability.

#### **Environment:**

Dust Free Office Environment  
70-80° F., 30-60%RH

### **EQUIPMENT SPECIFICATIONS**

#### **Applications:**

Engineering Drawings

Scientific Data Display

N/C Tool Datum Verification

Environmental Studies

Mapping

#### **FERRANTI MICROFILM PLOTTER**

##### **Input:**

Paper tape, 8-level ASCII code, 7-or-9 track magnetic tape using standard code or on-line connection to central processing equipment.

##### **Output:**

35mm aperture card mounted microfilm

At a normal enlargement (15 times)

(23.4" x 16.5"), the following nominal parameters apply:

Line Widths — 0.012" and 0.024"

Character Heights — 0.016" and 0.212"

Programmable Vector Strokes—0.004" and 0.032"

Resolution — 0.002"

Line Drawing Speed — 330" per second

#### **Accuracy:**

1. Over a 12" sq. area or center of the print:  $\pm 0.5$  percent of distance from center point along each axis.
2. Over whole 23.4" x 16.5" area:  $\pm 0.85$  percent of distance from center of print along each axis.

#### **Physical Size:**

Height — 46"

Width — 40"

Depth — 40"

Weight — 600 lbs.

Electrical — 110/250V, 50/60 HZ

#### **Character Set:**

ABCDEFGHIJKLMNOPQRSTUVWXYZ

1234567890

° [ ] ' " . , : ; ! ? + - \* > < / = # 1 2 x o □ ▢

#### **Alternate Output Option:**

Standard 35mm microfilm camera with power film advance and shutter cocking.

#### **PDP8/L COMPUTER**

- Fully parallel processor
- Low-cost core memory expansion to 8,192 words
- Low-cost mass storage expansion with DECdisk and DECTape after addition of peripheral expansion and I/O conversion options
- Program and maintenance training included
- TTL integrated circuit modules throughout
- Complete with central processor, 4,096-word core memory, operator console, and ASR 33 Teletype

#### **Rack-Mounted Model:**

##### **Size:**

Height — 8 3/4"

Width — 19"

Depth — 23 1/8" from front of console to back of slides.

#### **Mounted In Standard Cabinet:**

##### **Cabinet Size:**

Height — 71 7/16"

Width — 21 11/16" with end panels

Depth — 30"

Space (42" Height x 19" Width) for additional core memory, disk files, or magtape if required, is provided in the standard cabinet included with System.

Total Weight PDP8/L w/Std. Cabinet — 310 lbs.

#### **Electrical:**

Power requirements — 117.5  $\pm$  12.5 Vac,

47-63 cycles, 1 phase, 0.3 KVA

Power Dissipation — 250 watts

I/O Bus Levels — ground and +3 volts

Internal Circuit Potentials — +5, -30, -15 volts

#### **Functional:**

Cycle Time — 1.6 microseconds

Word Length — 12 bits

Core Memory Size — 4,096 words, expandable to 8,192 words

Instructions — 8 basic instructions: 6 memory reference and 2 augmented. The augmented instructions are microprogrammed to produce more than 200 commands

#### **Environmental:**

Temperature — Tested to 130° F.

Humidity — 10-90% without condensation

#### **ASR 33 TELETYPE**

##### **Size:**

Height — 33" to top of console

45" to top of copyholder

Width — 23"

Depth — 18"

Weight — 110 lbs. (on stand)

##### **Power Requirements:**

115 volts  $\pm$  10%

60 cps  $\pm$  .45, single phase, input current 2 amps

#### **STORAGE DISPLAY CRT UNIT, TYPE 611, MODEL 162C**

##### **Resolution:**

Minimum specified resolution capability is equivalent to 300 line pairs vertical, 400 line pairs horizontal, as measured by dot pattern method.

The holding-mode of operation is incorporated in the Type 611 to prolong the life expectancy of the

cathode ray tube phosphors. The instrument automatically assumes a holding-mode condition about 1 minute after the last writing function or after a view mode has been initiated by the front panel VIEW switch.

##### **Line Straightness Deviation:**

Deviation from the mean is  $\pm$  0.5% of line length

##### **Useful Display Dimensions:**

Length — > 21 cm (~8 1/4")

Width — > 16.2 cm (~6 3/8")

##### **Stored Luminance:**

$\geq$  3 Foot Lamberts

##### **Contrast Ratio:**

$\geq$  3:1 when first stored decreasing to  $\geq$  2:1 after 15 minutes

##### **Resolution:**

4,000 characters based on a 90 x 70 mil matrix, clearly legible with good spacing. Equivalent to 400 vertical x 300 horizontal stored line pairs.

##### **Viewing Time:**

Limit total viewing time to not more than 15 minutes.

##### **Erase Time:**

$\leq$  0.5 seconds

##### **Dot Writing Time:**

$\leq$  20  $\mu$ s

$\leq$  10  $\mu$ s initially

##### **Line Voltage:**

115 or 230 volts nominal

##### **Line Frequency:**

48 to 66 Hz

##### **Maximum Power Consumption:**

250 W at 115 volts, 60Hz

##### **Overall Dimensions:**

Height — 11 7/8 inches

Width — 11 5/8 inches

Length — 22 3/8 inches

Weight — 50 lbs.

**Contact us for the most advanced equipment to fill your needs for:**

Precision artwork (all manual drafting methods on all media, including cut & peel films, scribe coated materials, etc.)

Preparation of fully edited N/C Data from graphic information

Precision automatic artwork generation with multi-colored inks or pencil, scribing with sapphire scribes, cutting with special blades for cut and peel, or photodrafting with light beam on photosensitive materials

**Ask for informative literature on our plotting systems.**

CORADOGRAPH — Manual Precision Coordinatographs 20" x 20" to 80" x 60", overall accuracy  $\pm 0.0008"$ .

CORADOMAT — Automatic Artwork Generator

DigiRail — Dual Rail Digitizing System for preparation of fully edited N/C Data

Codamatic Systems — Readout and Recording Systems for digitizing and precision plotting and measuring with CORADOGRAPH and DigiRail

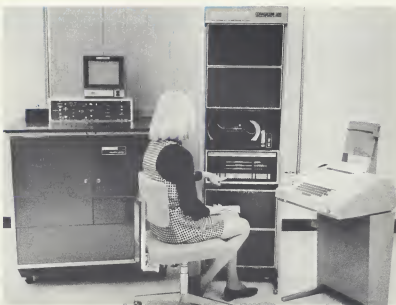
CORADICOM 330 — High Speed Plotting, Editing, Verification System

We would be pleased to make recommendations suited to your requirements at no obligation.

**faul · coradi inc.**

27 FENNEL STREET, SKANEATELES, NEW YORK 13152 • (315) 685-5761 • CABLE: FAUL SKANEATELES, NEW YORK • TWX#710-542-0627  
G. CORADI AG, ZÜRICH, SWITZERLAND • CORADO GRAPHICS LTD. TORONTO, CANADA • FAUL-CORADI SCOTLAND LTD. HADDINGTON, U.K.

## Coradicom 330 Microfilm Data Processing System Introduced at ACSM-ASP Convention



CORADICOM 330 System

Faul-Coradi's exhibit at the ACSM-ASP Convention (American Congress of Surveying and Mapping and American Society of Photogrammetry) in Washington, D. C. March 1-6, drew the attention of all in attendance. The Convention was held at the spacious Washington Hilton and attended by the following Faul-Coradi personnel: Thomas L. Faul, President, Wolfgang C. Wagner, Sales Manager, R. Terrell Beishline, Salesman, and Edith Angus, Copywriter. Mr. Hugh A. Campbell, who is coordinating our activities in Zurich, Switzerland and Haddington, Scotland, also attended. Helping at our 30 foot booth were personnel from Treck Photographic & Seltronics, our distributors in the Washington area.

Our main attraction at the booth, the new CORADICOM 330 System was successfully introduced at the Show. Incorporated in the System are a high speed cathode ray tube microfilm plotter, 4K computer, a CRT Storage Display, and a Teletype ASR 33 Reader/Writer. The System verifies, edits, and modifies N/C data tapes in a high speed information interchange manner.

The artwork is plotted with linear, circular, and/or cubic interpolation at a rate of 330" per second on the CRT Display, while a microfilm aperture card may be produced simultaneously for detailed study and verification. The System also plots alpha-numeric characters both upper and lower case in two sizes. It is equipped with software programs which enable it to digest EIA-RS244 or ASCII code as well as post process such data to convert it from one automatic plotter format to another. The System will convert data from one code to another and duplicate such information on an output device in the new code desired.

Format errors in N/C data are found automatically by the System computer, printed out on the Teletype, and coded as Error 1, Error 2, etc. and reason for error printout. Other errors such as line to wrong point, missing line, etc.

are located by the operator on the CRT display. These error corrections are listed via Teletype in a manner similar to the format errors. A new tape is then put out by the System with all corrections entered and verified.

Additional System components can be added to the CORADICOM 330 to provide the capability to edit directly in memory. Appropriate software would be available should this capability be required.

*The CORADICOM 330 SYSTEM is available for use through our Time Sharing Facility. Barbara Brown, Time Sharing Supervisor would be happy to furnish data in this regard. We also have a detailed brochure including specifications on the CORADICOM 330 which is available on request.*

Also exhibited at the Convention was the Codamatic DigiRail Digitizer, demonstrated at the booth by Edie Angus. Tapes produced on the Digitizer were in turn run through the CORADICOM 330 System, plotted and verified. Changes were made in scale and origin, demonstrating the versatility of the System.

A 3-axis CORADOGRAPH System with Bausch and Lomb Tracing Table was also exhibited at the Convention. The 3-axis System was demonstrated with the KDB 12123 48" x 48" CORADOGRAPH.

The mapping convention was informative. Automated equipment was exhibited at every corner on the Exhibit floor, emphasizing current trends toward N/C equipment in the mapping industry, where highly accurate drawings, measurements, and photography are basic requirements.

The Convention afforded the opportunity for those in attendance to see our Nation's capital. Many people at the Convention were visiting from other countries, and the majority found time to enjoy the City and its night life.



## Convention Reports Nepcon West

Nepcon West was held at the Anaheim Convention Center directly across from Disneyland. It was attended by Wolfgang C. Wagner, Sales Manager, and Donald A. Morin, Assistant Sales Manager, who worked in the Trek Booth exhibiting our equipment. The usual California sunshine was really appreciated after the many months of hard winter spent in Central New York. Time was found to visit the fabulous Disneyland and enjoy a few games of golf between the filled business hours at the Convention.

The main attraction at the Trek PhotoGraphic booth at Nepcon West February 10-12 in Anaheim, California, was the Codamatic DigiRail Digitizer. The Digitizer's ease of operation for preparation of completely edited N/C data from graphic information caught the attention of the many "N/C minded" people in attendance.

Budget conscious individuals noted the exchange of electronics between the DigiRail Digitizer and the CORADOGRAPH at the exhibit. A Codamatic VIII Electronic Read-out and Recording System can be shared by the DigiRail and a CORADOGRAPH at a user's facility, which brings both systems within reasonable reach of limited budgets.

Our brochures "Point of Origin" and "Digitizing by Faul-Coradi" provide a useful answer to the question, "How do you talk to a computer?" and descriptive information on the Codamatic DigiRail.



Codamatic VIII DigiRail Digitizer

## IEEE

**"A funny thing happened  
on the way to the forum!"**

The IEEE Exhibit in the New York Coliseum, New York City, March 22-26 also proved a success.

The Faul-Coradi booth was manned by our Wolfgang C. Wagner, Sales Manager, Donald A. Morin, Assistant Sales Manager, R. Terrell Beishline, Salesman, and our distributor on the east coast, Howard Edminster. Mr. Wagner stated, "This was the best show I have ever attended." — in spite of the airline problems and the 'funny thing that happened in beautiful downtown New York City one night'.

Reservations were held at the City Squire Hotel in New York for our personnel, and room 1012 was occupied by Terry Beishline and Howard Edminster. After a long hard day at the convention and a few hours of New York night life they had returned to their room for a peaceful night's sleep. They had their peaceful sleep — however, when they awoke in the morning, they were astonished to see their room in a shambles. During the night, while they slept, someone had entered and stolen everything that could be found of value! A total loss between Mr. Edminster and Mr. Beishline in the area of \$700 was reported lost.

Back on the Convention floor, the DigiRail Digitizer attracted the attention of engineers and designers with interest in a system capable of converting artwork into numerical data. The many extra features of the DigiRail such as grid roundoff, dual rail, scaling, X-Y and  $\pm$  reverse, DigiDotter point marker, were of major interest at the Show.

The CORADOGRAPH's well known proficiency for preparation of high precision artwork and measuring capabilities also attracted many at IEEE, as well as at the ASCM-ASP and Nepcon West Conventions.

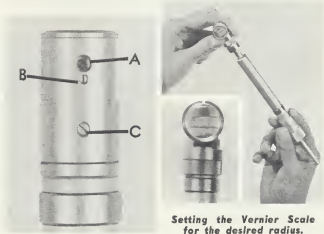
## TECHNICAL TIPS

### The KDB 507 Small Circle Compass

The KDB 507 Small Circle Compass is used to draw arcs or circles. The vernier scale reads from 0" to .200" in radius. The standard cut and peel knife is used with the Compass on cut and strip materials. Any of the standard round or chisel point scribes are used on scribe coated materials. Weights provided with the CORADOGRAPH may be used for precise tool pressure adjustment on the small circle compass.

Because of extremely close tolerances involved, the bearings which support the compass when it is in the CORADOGRAPH tool holder sleeve, are self-aligning. This is necessary to prevent jamming.

To change or insert knife or scribe into the Compass, the vernier must be turned to "0" so that the uppermost set screw (A) is accessible through the hole provided. The set screw (B), immediately under the access hole, is used to lock the radius setting so that it will not change while in use. Set Screw B should NOT be overtightened. Under no circumstances should the lower screw (C) be adjusted. Likewise, a matching screw directly opposite Set Screw C should never be adjusted.



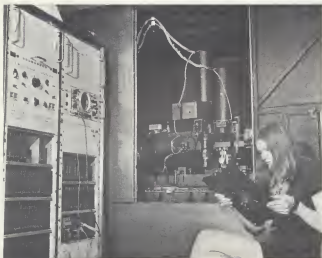
Setting the Vernier Scale  
for the desired radius.



New Small Circle Compasses are shipped with a KDB 16RS brass reduction sleeve for small shank scribes. The KDB 16RS must be removed before insertion of standard knife or scribe. This is easily accomplished by loosening Set Screw A until the slot is above the brass surface. Insert a small jeweler's screwdriver into the center of the reduction sleeve and, applying a little 'side' pressure, pull the sleeve out. CAUTION NEW USERS: Be sure to retighten Set Screw A before attempting to move the vernier setting from "0" to prevent damage to the compass.

The vernier scale has graduations in 0.001" increments. The magnifying lens which is used for easy checking of the vernier scale is slipped over the end of the compass before adjusting the radius. The lens of the viewer can be inserted or withdrawn in its holder for convenient magnification. The vernier setting should be rechecked after the locking screw has been lightly tightened, and the viewing lens should be removed before inserting the Compass in the CORADOGRAPH tool holder sleeve.

## Galaxy Star Plate Analyzing System



Star Plate Analyzing System at  
University of Edinburgh, Scotland

In our Winter, 1970 Faul Line, we announced the acquisition of Faul-Coradi Scotland. Since that time, we have seen much world-wide publicity regarding Galaxy Star Plate Analyzing Systems manufactured by our new affiliate.

Spectacular results have been reported by the users of the Galaxy System at the Edinburgh Royal Observatory, Edinburgh. The System is faster than any previously devised, such as the semi-automatic system in use at the Lick Observatory and the National Observatory in the United States. The Galaxy utilizes a Schmidt 16" Telescope and an ICL 4130 Computer.

Galaxy can measure the accuracy of a star's position to one micron (one thousandth of a millimeter!). By the end of 1970, the System is expected to have measured more star images than the world's astronomers have measured over the past century!

Galaxy could have wide application in any field requiring precision analysis of microscopic images such as medical research of experimental cultures. It could be programmed to recognize distinctive patterns in searches for particular structures among biological molecules being studied under an electron microscope. Galaxy could prove to be of immeasurable value in mapping the heavens for future space travel.

## PERSONALITY

Stephen G. Ludt, the company's Controller, joined Faul-Coradi in October, 1969. Steve is responsible for directing the accounting and financial function at Skaneateles, as well as coordinating financial planning and policies with the other companies in the Faul-Coradi group.

Steve came to Faul-Coradi after three years of financial planning experience with the Singer Company at their headquarters in New York City and their Climate Control Division in Auburn, New York, where his position was Assistant Controller.

Prior to joining the Singer Company, Steve attended Harvard Business School for his MBA and Lehigh University for a BA in Economics.



Stephen G. Ludt

Steve originally comes from Tarrytown, New York, and has spent some time abroad living in Japan and the Netherlands. Steve, his wife and three daughters now reside in Skaneateles, New York.

## NEW PUBLICATIONS

### ADVANTAGES AND A BRIEF HISTORY OF THE FAUL-CORADI CORADOGRAPH

Is a 12 page brochure with a wealth of information describing the advantages of the CORADOGRAPH. Illustrated, factual, and complete data.

### SPECIFICATION SHEETS

Individual specification sheets on each CORADOGRAPH Model are now available, including weights, physical and mechanical specifications, etc.

### KDB 150 PROJECTION SCREEN MICROSCOPE

Descriptive brochure (4 page, illustrated); Also, available are completely illustrated instructions on the Microscope's installation and operation.

### CORADICOM 330 SYSTEM

Illustrated 8 page brochure on the System including specifications. Includes available options, input-output information, sample software programs, etc.

*All New Publications are available on request.*

The Faul Line  
Faul-Coradi, Inc.  
27 Fennell Street  
Skaneateles, New York 13152

The Faul Line

Published quarterly by the Sales  
Department of Faul-Coradi, Inc.,  
for customers, friends, and em-  
ployees. Editorial Production:  
Edith Angus.

## ADVERTISING SCHEDULE FOR SPRING, 1970

### APRIL

MACHINE DESIGN	1/3 page
DESIGN NEWS	1/3 page
INDUSTRIAL EQUIPMENT NEWS	1/9 unit
PLAN AND PRINT	1/3 page
ELECTRONIC PACKAGING & PRODUCTION	1/3 page
JOURNAL OF GEOPHYSICAL RESEARCH	1 page
REPROGRAPHICS	1/3 page

### MAY

MACHINE DESIGN	1/3 page
AUTOMATION	1/3 page
PHOTOCHEMICAL ETCHING	1/3 page
SOLID STATE TECHNOLOGY	1/3 page
ELECTRONIC PACKAGING & PRODUCTION	1/3 page
ELECTRONIC PRODUCTS AID CATALOG, 1970 EDITION	2 page insert
REPROGRAPHICS	1/3 page

### JUNE

ELECTRONIC PACKAGING	1/3 page
PHOTOCHEMICAL FABRICATION	1/3 page

## LETTERS

We invite your comments, inquiries and suggestions concerning Faul-Coradi's equipment and our *Faul Line* publication. Material of general interest will be answered as space permits. Have a Technical Tip you would like to share with our Readers? Address your letters to Editor, Faul Line, 27 Fennell St., Skaneateles, N. Y. 13152.

## Ridiculous?

$$\frac{10}{1} = \$1 \frac{1}{10}$$

## faul · coradi CORADOGRAPH

• CUTS • DRAWS • MEASURES

... with at least 10 times more speed and accuracy than conventional drafting equipment, when equipped with optional digital read-out.\* Time and cost, of course, are in inverse proportion—and you get that fat bonus in accuracy, too!

See how this fits: OVERALL ACCURACY—±0.0008"; RESOLUTION—0.0001"; REPEATABILITY—±0.0004".

Three-point suspension retains above precision, month in, month out: Constant guide-wheel/guide-way contact at three points is non-dirt-sensitive, 'floats' head from point to point.

Single factory-aligned tool-holder is guaranteed 100% precise on delivery. Automatically centers each instrument when inserted. Use microscope and any tool alternately without adjustments.

Nixie tube display is easily read, kept under constant accuracy-check by mechanical dials. Tied in electronically with optical encoders at rack-and-pinion X-Y shafts.

\*Faul-Coradi Coradographs without digital readout yield the following accuracies: OVERALL ACCURACY—±0.001"; RESOLUTION—0.0005"; REPEATABILITY—±0.0008".

We service our equipment.

Representation from coast to coast.

faul · coradi inc.

53 Fennell St., Skaneateles, N.Y. 13152 U.S.A.

TEL. 315-685-5761 CABLE: Faul, Skaneateles, N.Y., U.S.A.

TWK: 710-542-0612





Faul-Coradi's New Precision Electronics Firm — Haddington, Scotland

## Faul-Coradi, Inc. Announces Acquisition of Scotland Electronics Firm

Operating now under the name of Faul-Coradi Scotland Ltd., a precision electronics firm (formerly Hilger Electronics (Scotland) Ltd., located in Haddington, Scotland) has become a wholly owned subsidiary of Faul-Coradi, Inc. of Skaneateles, New York, U.S.A. The firm, purchased from Rank-Xerox, was primarily engaged in research and development of precision scientific instruments.

Faul-Coradi Scotland Ltd. has been recently moved to production facilities at a new 20,000 sq. ft. plant in

Haddington, East Lothian County, on 17 acres of property. Future plans include plant expansion to 100,000 sq. ft.

Current capabilities of Faul-Coradi Scotland Ltd. include manufacture of numerical control equipment, similar to that used to control machine tools, but applied instead to the control of specialized measuring equipment for radio telescopes, bubble chambers, and other sophisticated applications i.e.: Galaxy Star Plate Analyzing Systems — one of which is currently in use at the Royal Observatory, University of Edinburgh. Overall accuracies possible with this equipment are in the area of one micron and repeatability to one half micron. Engineering capabilities of this type will be utilized in producing electronics for the Faul-Coradi CORADO-

Continued on page three

## The Faul Line

Faul-Coradi, Inc.

Twenty Seven Fennell Street  
Skaneateles, New York 13152

Vol. III, No. 1 Winter, 1970

## A Look at Faul-Coradi's Manufacturing Plant

Precision work, competent and individually trained personnel, quality control — these are the important components which produce Faul-Coradi's precision equipment, making it the best buy in its field for "AAA quality" performance.

An interview with Seward Collard, Plant Superintendent, brought forth several points of interest concerning Faul-Coradi's Plant #2. Here the CORADOGRAPH tables are manufactured and mated to the CORADOGRAPH instruments, the Codamatic DigiRail produced, and complete checkout procedures strictly adhered to, supplying our customers with highest quality equipment.

From the hand picking of suppliers for quality base materials and close tolerances to specifications, to the simple but thoroughly effective system of inspection, the main stress at the plant is on precision work throughout the manufacturing process . . . tolerances of .0005" are not unusual.

The personnel at Plant #2 have been carefully selected — only one in ten applicants is acceptable. A rigid 30 day testing period, during which approximately 50% qualify for continued employment, spotlights the men

capable of producing satisfactorily under strict standards. Each man is personally supervised by Seward Collard or Bill Mead, Plant Foreman, and trained specifically for the phase of production he will be responsible for.

Precise alignment of the DigiRail Digitizer with the artwork is determined by the machined ways. The DigiRail Grinder, designed and built by Faul-Coradi for the exclusive purpose of machining the ways of the DigiRail, emphasizes the importance placed on precision in

Continued on page two



Milling of Digitizer Beam on Faul-Coradi's DigiRail Grinder. Bill Mead, Plant Foreman, is shown checking tolerances with a dial indicator.

## PERSONALITY

Seward J. Collard, Plant Superintendent

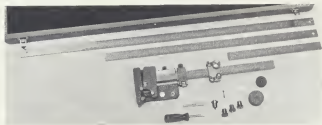
This issue of the Faul Line gives you an inside view of our manufacturing plant in Skaneateles, making it only appropriate to spotlight Seward J. Collard our Plant Superintendent.

Mr. Collard, born on October 7, 1927, in Marcellus, New York, and always a native of Central New York, now resides in Skaneateles. A graduate of Marcellus Central School, he received basic machinist training with the U. S. Army, after which he served in Japan and Korea. Since his discharge from the army, he has been primarily engaged in the development and prototype phase of manufacturing. Twenty years of experience in precision machining prepared him for his current position. During the eight years immediately preceding his employment with Faul-Coradi in October, 1967, he worked as plant superintendent in the Metal Spinning Industry for the production of high precision metal spun parts.

Mr. Collard has been trained to install the CORADO-MAT Automatic Artwork Generator and personally supervises most of the field service for the CORADOGRAPH equipment. He recently made an extensive trip to Europe for more advanced training at our plant in Zurich, Switzerland, G. Coradi AG. The trip also included a visit to our plant in Scotland to meet the new personnel associated with Faul-Coradi. At Faul-Coradi Scotland Ltd., our recently acquired Scottish affiliate, technical details were discussed regarding electronics compatible with Faul-Coradi equipment.



## TECHNICAL TIPS



Beam Compass

Everyone is aware that cutting an angle with the rotary table requires only that the table be rotated the appropriate number of degrees. This technique can be used at *any point* on the rotary CORADOGRAPH Table Surface. By positioning the X and Y beams, the operator locates the point where the angle must begin and makes the cut.

If your requirement for angular lines is occasional, you probably do not have the benefit of the rotary table for this purpose. In this case, the Beam Compass would be used to cut angles. The following procedure outlines the ease with which the Beam Compass may be used:

1. Locate one point with the pricker point microscope and position both axis at this point
2. Attach the Beam Compass

3. Insert the viewing lens in the tool holder post
4. Move the tool slide to locate the second point in the viewing lens
5. Hold the Beam Compass in this position using its brake holddown
6. Replace the viewing lens with the cutting tool (be sure to orient the tool correctly)
7. Move the tool slide along the beam until you reach "0" on the vernier

You have just completed an angular line between two known points on the artwork. If the end points were not known, they should first have been determined by appropriate mathematical calculation before proceeding with the above instructions.

If this technique is used for scribing, the cut should be completed in two segments, each beginning at one of the points and cutting toward center in order to avoid over cutting the end points.

## Faul-Coradi's Manufacturing plant

Continued from page one

the manufacturing process. The machine's base is a ground granite beam. It accepts a DigiRail beam as large as 96" and machines its entire length to  $\pm 0.0005"$ .

The CORADOGRAPH instrument, manufactured at our plant in Zurich, Switzerland, is completely rechecked at Plant #2 before mating to its illuminated glass plotting table. A precision ground granite slab 48" x 72" is set up at Plant #2 for this purpose. Here the Y beam's entire length is calibrated to alignment specification of  $\pm 0.0005"$ . At the same time, each accessory to be furnished with that particular machine is checked and aligned to correct any possible deviation from specifications.

A collimator is used to bring the basic X and Y supports of the table into alignment with each other. When both the CORADOGRAPH and the Table on which it will be mounted have been found completely in specification, they are mated. The Table is aligned to the CORADOGRAPH instrument to a flatness of  $\pm 0.005"$ . The complete unit is then ready for shipment.

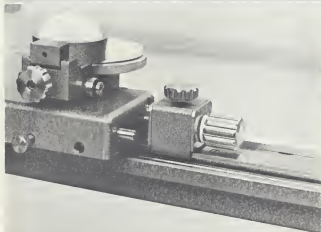
Each man on our manufacturing staff is responsible for his own work and double checks everything he produces. At the end of each phase of production the Plant Superintendent or Plant Foreman personally inspects the work. The final product again undergoes thorough inspection prior to shipment.

The value of our special training, equipment, methods, and high standards is proven by the performance of our equipment and our many satisfied customers.



Harry Farmer, one of our Plant #2 personnel inspecting CORADOGRAPH Y Beam alignment.

## NEW IMPROVED PRODUCT NEWS



**New Coradograph Micro Adjustment**

A completely new, significantly improved CORADOGRAPH Micro Adjustment has been developed by Faul-Coradi. The new Micro Adjustment allows one-hand operation of either axis and makes precise positioning easy. It is available for use with all instruments sold since September 1, 1969, and can be retrofitted at the factory to CORADOGRAPHS sold prior to that date. As of January 15, 1970, all CORADOGRAPHS will include the new Micro Adjustment at no extra charge.



**New "Fish Eye" Lens**

In line with our continuing product improvement program, a new "Fish-Eye" type lens has been perfected. The new lens provides a scale magnification of 3X, as compared to 1X of the former convex lens. It enables the operator to accurately read the scales from peripheral positions (30°) without parallax problems, reducing operator fatigue. Available on all new CORADOGRAPHS, the improved optics may also be installed on all existing CORADOGRAPHS in a matter of minutes.

## Acquisition announcement

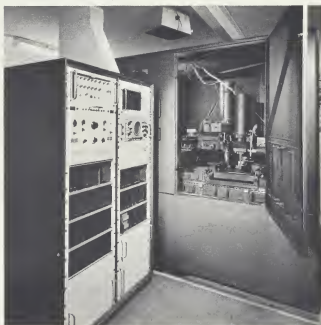
Continued from page one

MAT Automatic Artwork Generators and other measuring and drawing instruments, opening new avenues in drafting, plotting, and measuring accuracies never before possible.

Directors of the Board of the new corporation are as follows: Thomas L. Faul, Chairman; C. Norman Reese, Managing Director; Robin Blair; and A. Hugh Campbell who will be primarily involved in liaison between Faul-Coradi Scotland Ltd. and the Faul-Coradi plants in Switzerland, Canada, and the U. S. A. Other members of the board are Frank R. Metcalf, Chairman of the Board of Faul-Coradi, Inc. and President of Columbian Rope Company; Merle S. Robie; and Spencer H. Brewster of Auburn, New York.

The new Corporation will design, manufacture, and interface electronics for the Faul-Coradi group of companies. With these new capabilities within the organiza-

tion, Thomas L. Faul states, "We will be in a position to improve and control design, development, capacity, and deliveries to our customers' specifications and requirements." The new plant in Scotland is already producing, and plans for immediate and continued expansion are under way.



**Galaxy Star Plate Analyzing System with plate loading access door open at Royal Observatory, University of Edinburgh, Scotland.**

## SHOW SCHEDULE

### NEPCON WEST — Treck PhotoGraphic Booth 632

Where? Anaheim Convention Center, Anaheim, Calif.  
When? February 10, 11, 12  
What? Codamatic VIII DigiRail Digitizer, KDB 5053 20" x 20" CORADOGRAPH w/CODAMATIC II

### ASP-ACSM CONVENTION—Booths 141, 142, & 143

Where? Washington Hilton, Washington, D. C.  
When? March 3, 4, and 5  
What? CODAMATIC VIII DigiRail Digitizer, KDB 5053 20" x 20" CORADOGRAPH with Multi-

plexer, KDB 12123 48" x 48" CORADOGRAPH with CODAMATIC II Readout System, new Micro Adjustment and "Fish-Eye Lens", New Product: Coradicom 330 Microfilm Data Plotter (produces aperture card in less than one minute!)

### IEEE CONVENTION — Booth IJ24

Where? New York Coliseum, New York, New York  
When? March 23 - 26, 1970

What? CODAMATIC VIII DigiRail Digitizer, KDB 5053 20" x 20" CORADOGRAPH with Multi-plexer, KDB 12123 48" x 48" CORADOGRAPH with Codamatic II Readout System, new Micro Adjustment and "Fish-Eye Lens"

Competent sales engineers will be at each of the above conventions, prepared to demonstrate and to answer any of your questions regarding our equipment. A limited supply of complimentary passes are available on request.



Faul-Coradi, Inc.  
27 Fennell Street  
Skaneateles, New York 13152

The Fine Line

The Fine Line

Published quarterly by the Sales Department of Faul-Coradi, Inc., for customers, friends, and employees. Editorial Production: Edith Angus.

## ADVERTISING SCHEDULE FOR WINTER 1970

### JANUARY

MACHINE DESIGN	1/3 page
PHOTO CHEMICAL FABRICATION	1/2 page
REPROGRAPHICS	1/3 page
ELECTRONIC PACKAGING & PRODUCTION	1/3 page

### FEBRUARY

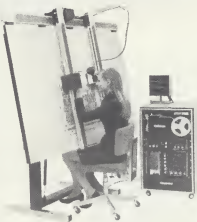
MACHINE DESIGN	1/3 page
DESIGN NEWS	1/3 page
ELECTRONIC PACKAGING & PRODUCTION	1/3 page
SURVEYING & MAPPING	1 page

### MARCH

MACHINE DESIGN	1/3 page
AUTOMATION	1/3 page
INDUSTRIAL EQUIPMENT NEWS	1/9 unit
PHOTO CHEMICAL ETCHING	1/3 page
SOLID STATE TECHNOLOGY	1/3 page
ELECTRONIC PACKAGING & PRODUCTION	1/3 page
PRODUCT ENGINEERING	1/3 page
DATAMATION	1/3 page
INDUSTRIAL BULLETIN	1/3 page
PRODUCTION EQUIPMENT	1/3 page
PRECISION METAL	1/3 page
THE TOOL MANUFACTURING ENGINEER	1/3 page
CIRCUITS MANUFACTURING	1/3 page
DATA PROCESSING	1/3 page

Note: We are trying several additional publications during March, 1970, as indicated.

## How to hurdle the 'LANGUAGE BARRIER' when programming N/C machine tools



## Faul-Coradi CODAMATIC

Digitizing/Recording  
Systems

... make sure nothing is 'lost in the translation' of design drawings to numerical control data: Record on tape or cards. Issue complete, fully edited instructions for • AUTOMATIC PLOTTERS • N/C DRILLING EQUIPMENT • N/C PRODUCTION MACHINES

Start small, if you wish: Begin with a Codamatic DigiRail System offering dual Y rail, rack-and-pinion encoding, grid round-off, scaling, X, Y and  $\pm$  reverse, 200-terminal patch board, event counter, automatic point marker and basic X,Y read-out/recording for fast-and-accurate measuring. Or start with a Codamatic Coradograph System with all of the above plus medium-fast-and-ultra-accurate measuring, drawing and cutting.

Add selected equipment modules as needed, e.g.: • Full CRT display and search/erase/restatement capacities • 3- or 4-axis recording: X,Y,Z; r $\theta$ ; r $\theta$  conversion to X,Y • Scale, perimeter, area, volume, other calculations

For a useful answer to "How do you talk to a computer?" and for our eight-page brochure, "Point of Origin," it, and our booklet on "Digitizing" contain detailed information on Codamatic Systems.

faul-coradi inc.

27 FENNEL ST. SKANEATELES, N.Y. • 13152 (315) 885-5761

CABLE: FAUL SKANEATELES, N.Y.

## Time Sharing Facility In Full Swing



*Stripping material on a time shared cut and peel job.*

"We now have a complete data processing center with trained personnel available and actively engaged in time sharing projects," says Wolfgang C. Wagner, sales manager.

The time sharing service requires no capital investment nor upkeep expenditure on the part of the user, he said.

Faul-Coradi has already experienced wide-spread acceptance by many industrial firms which cannot afford, nor have the need for, a full-time digitizing and automatic drafting facility.

The time sharing program may be entered in three basic modes: a user may 1) mail a drawing to Faul-Coradi which is converted to numerical data (Electronic Industry Association (EIA) Code) on a Codamatic digitizer, 2) mail a fully edited, machine language, punched paper tape in ASCII code which Faul-Coradi will convert to EIA code, or 3) send an EIA tape which is directly acceptable input to the Coradomat 15 numerically controlled drafting machine.

The Coradomat 15 is capable of producing drawings in any of the following manners; drawing with multicolored inks or pencil, scribing with sapphire scribes, cutting with specially designed blades for cut and peel, or photodrafting with light beams on a variety of photosensitive materials. The Coradomat 15 is capable of producing the output artwork to any scale desired.

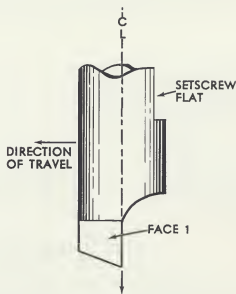
The completed artwork is mailed to the customer normally on a five working day turnaround basis. For even faster service, in the near future, fully edited, customer-prepared tapes will be received via a high speed tape-to-tape system. With this type of input, data is transmitted from distant points over conventional telephone channels between terminals equipped with paper tape reading and recording facilities. The tapes received at the data processing center in Skaneateles are converted to EIA code and fed to the Coradomat 15 automatic artwork generator.



*Digitizing a drawing.*



# Use of the 18KS Sharpening Fixture



Enlarged sketch of lower portion of 18KS cut and peel knife, showing setscrew flat.

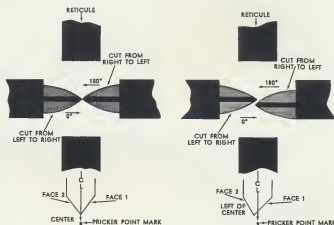
Faul-Coradi type 18KS tool steel knives may be resharpened by the user with our sharpening fixture. It is extremely important that sharpening be done properly. We have found that the following method is generally satisfactory.

1. Place the knife to be sharpened into the holder of the 18KS fixture. Be sure the flat on the knife shank is under the set screw. Tighten the set screw firmly.
2. The knife holder is spring-loaded to maintain constant pressure against the stone in use during sharpening. Withdraw the knife holder to its limit in the fixture and place the four wheels on the stone. Now, GENTLY lower the knife against the stone. (Note — you should use light oil on the stone before each use. If the knife point has been damaged it will be necessary to use either the medium or coarse stone, or both, to renew the cutting edge of the knife completely.)
3. With one hand, hold the stone down firmly, so it won't move. Use the other hand to hold sharpening fixture firmly against the stone. Move the fixture back and forth over the stone. Be sure to count the strokes. (This is done in order that both sides of the knife are sharpened the same amount).
4. Lift the fixture off the stone. Retract the knife holder to its upper limit and rotate the stem 180 degrees. This is done, of course, to place the opposite face of the knife in contact with the stone, so that an equal amount can be removed from that side. If care is not taken to remove material equally, the center of the knife will not be at the center of the microscope (i.e. — tool post center).
5. Repeat steps 2 and 3

If the edge is not sharpened sufficiently, it will be necessary to repeat the steps 2, 3, and 4 several times.

Check the knife to see if it is now cutting on center as follows:

Place the knife into either a KDB16KU or KDB16B holder. Place the tool with the knife installed into the Cordograph tool sleeve holder. LOCK one axis (X). Make a short cut on cut and peel material with the Y axis. Lift the knife. Go beyond the end of the cut and turn the knife 180 degrees. Lower the knife and cut back to the end of the first cut. Remove the tool from the tool sleeve, place the microscope in the tool sleeve and check to see if the ends of the two lines meet. If they do, no further sharpening is required.



Checking procedure as seen through the Pricker Point Microscope: A) Right and left cuts meet, indicating correctly sharpened knife. B) Right hand cut is off line, 0.001" indicating that 0.0005" must be removed from that side of the knife.

If the two cuts do not meet, measure the space between the two lines and note in which direction the deviation is. The amount which should be removed from the appropriate face of the knife is  $\frac{1}{2}$  of the measured deviation.

Three strokes of the blade against the hard stone (hone) will remove approximately 0.0005". Use this as a guide for taking corrective action. If you sharpen the knife before it is actually dull, five strokes on each face will keep it sharp and corrective action should not be required to keep it cutting on center.



Lower: 18KS sharpening fixture and 18KS knife  
Upper: Combination medium and coarse stone

## Personalities

Spencer H. Brewster, executive vice president, has direct responsibility for all administrative, sales and production operations. Mr. Brewster was formerly responsible for the cordage division of Columbian Rope Company. He has been a vice president and director of the firm since 1966.



"Mr. Brewster's prime job with Faul-Coradi is to provide us with the required management tools to maintain our lead in the state-of-the-art," Mr. Thomas L. Faul, president, stated. "Spence's broad background in sales, accounting and production operations will add immeasurably to the company's executive team and the total emergence of the firm."

Prior to joining Columbian Rope Company, Mr. Brewster was vice-president, cordage division for the Plymouth Rope Company, which was acquired by Columbian four years ago. While with Plymouth, he held management posts in production, accounting, and sales departments prior to being named vice president.

Mr. Brewster was a Captain and pilot in the Army Air Corps during World War II. A native of Plymouth, Mass., he attended Williams College, Williamstown Mass.

Mr. Brewster and his family reside in Skaneateles where a large portion of the entire family's free time is occupied with the well-being of several horses. On summer Sundays, Mr. Brewster can be found at the Skaneateles polo grounds, participating in the competition.

## Skaneateles — Home of Faul-Coradi

We feel very fortunate because our headquarters is located in Skaneateles," says Thomas L. Faul, president of Faul-Coradi, Inc. "All our visitors comment on the beautiful scenic spots in and around the village."

The village takes its name, of course, from Skaneateles Lake which was christened by the Iroquois tribes native to the area. Translated, it means, "Where the pure water bubbles up." Pronounced, "Skan-ee-at-less," the name for years has intrigued travelers and long distance telephone operators.

Located in the center of New York State, Skaneateles is just southwest of Syracuse, where the crossroads of the New York State Thruway and Interstate 81 provide our visitors ready access to Faul-Coradi and other area industries.

Several other well-known companies are located in this Colonial showplace, which was first settled in 1794. Welch-Allyn medical diagnostic instruments, and Playskool toys are both made here.

## Drafting Equipment Sale

A special price reduction of standard Nestler drafting equipment has been announced. Examples of the special prices are: Engineering drafting table, 60" by 36", formerly \$280.00, now \$180.00; Architects drafting table, 72" by 36", formerly \$250.00, now \$180.00; Track type drafting machine, formerly \$240.00, now \$186.00.

The Nestler track-type drafting machines, designed by Faul-Coradi in conjunction with Nestler Corporation of Lahr/Schwarzwald, West Germany, is a unique drawing machine.

Built for lasting precision and fatigue-free use, the Nestler Rail, prime component of the machine, is constructed of box-section aluminum extrusions. The box-section construction provides rigidity sufficient to support the operators' full leaning weight with no effect upon drafting accuracy. Silent, effortless operation is insured by the use of Delrin rollers in both horizontal and vertical rails.



**Nestler Table with Drafting Machine**

All standard drafting tables will accommodate the Nestler Rail unit without modification.

Complete information, including price reductions, may be obtained from Faul-Coradi, Inc., 27 Fennell St., Skaneateles, New York 13152.

For the summer visitor, as well as the year-round resident, Skaneateles is a place of enchantment. A mecca for sail boat and power craft enthusiasts, the spring-fed lake provides one of the few remaining uncontaminated swimming areas in the country. During the boating season, there are many sailing races, in addition to weekend regattas, that attract entrants from throughout the East.

We could go on about the old stage stop Sherwood Inn, or the world-famous Krebs restaurant, the outdoor art shows and garden club tours of classic homes in the summer, and the ice boating and skiing in the winter. Suffice to end with the familiar comment of visitors who exclaim, "Imagine being able to live all the time in a wonderful spot like this!"



**Headquarters and Engineering Laboratories**

The Faul Line  
Faul-Coradi, Inc.  
27 Fennell Street  
Skaneateles, New York 13152

## The Faul Line

Published quarterly by the Sales Department of Faul-Coradi, Inc., for customers, friends, and employees. Editorial Production: Chapman-Nowak and Associates, Inc.

### ADVERTISING SCHEDULE FOR AUTUMN

#### SEPTEMBER

MACHINE DESIGN	2/3 page
MACHINE DESIGN	2/3 page
DESIGN NEWS	1/3 page
INDUSTRIAL EQUIPMENT NEWS	1/9 unit
PHOTO-CHEMICAL FABRICATION	

PHOTO-CHEMICAL FABRICATION	Sept./Oct. 1/3 page
PHOTO-CHEMICAL ETCHING	1/3 page
GRAPHIC SCIENCE	1/3 page
REPROGRAPHICS	Sept./Oct. 1/3 page
SOLID STATE TECHNOLOGY	1/3 page
PLAN & PRINT	1/3 page
ELECTRONIC PACKAGING & PRODUCTION	1/3 page
PHOTOGRAMMETRIC ENGINEERING	page 114
SURVEYING & MAPPING	1 page
PHOTOGRAMMETRIA	Sept./Oct. page 120
BOOK OF CIVIL ENGINEERING	

PLAN & PRINT	Nestler Inventory Sale
AIA JOURNAL	Nestler Inventory Sale

#### OCTOBER

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AUTOMATION	1/3 page
SOLID STATE TECHNOLOGY	1/3 page
COMPUTERWORLD	1/3 page
ELECTRONIC PACKAGING & PRODUCTION	1/3 page
PHOTOGRAMMETRIC ENGINEERING	page 114
JOURNAL OF GEOPHYSICAL RESEARCH	page 260
PRODUCT ENGINEERING	1/3 page
N/C WORLD	1/3 page

#### NOVEMBER

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PHOTO-CHEMICAL FABRICATION	

PHOTO-CHEMICAL FABRICATION	Nov./Dec. 1/3 page
PHOTO-CHEMICAL ETCHING	1/3 page
SOLID STATE TECHNOLOGY	1/3 page
ELECTRONIC PACKAGING & PRODUCTION	1/3 page
PHOTOGRAMMETRIA	Nov./Dec. page 120

#### DECEMBER

SOLID STATE TECHNOLOGY	1/3 page
ELECTRONIC PACKAGING & PRODUCTION	1/3 page
PHOTOGRAMMETRIC ENGINEERING	page 114
JOURNAL OF GEOPHYSICAL RESEARCH	page 260

### SHOW SCHEDULE

Faul-Coradi digitizing and plotting systems will be displayed at selected technical conferences and shows during the forthcoming season. Our booths will be staffed by competent sales engineers who will be in a position to assist present users of Faul-Coradi equipment as well as introduce the systems to new prospects.

Full information on the use of our time sharing facilities will also be available.

#### NEPCON WEST

Anaheim, California, February 10, 11, 12, at the Anaheim Convention Center.

#### 1970 ACSM CONVENTION

Washington, D.C., March 1-6, at the Washington-Hilton

#### IEEE

New York City March 23-26, at the New York Hilton and the Coliseum.

We will announce booth numbers, and the availability of complementary passes, in the Faul Line.

### NEW PUBLICATIONS

#### "Digitizing By Faul-Coradi"

Primarily a sales tool, the 12-page brochure describes in detail the Codamatic electronics system. All currently available options, input, and output devices are explained. Highly illustrated and very readable, "Digitizing By Faul-Coradi" is available on request.

### LETTERS

In line with our policy of supporting Faul-Coradi equipment, we will initiate a new column in the next issue of the Faul Line — "LETTERS". We invite your problems, inquiries and suggestions. Material of general interest will be answered, as space permits. Address your letters to Editor, Faul Line, 27 Fennell St., Skaneateles, N. Y. 13152.

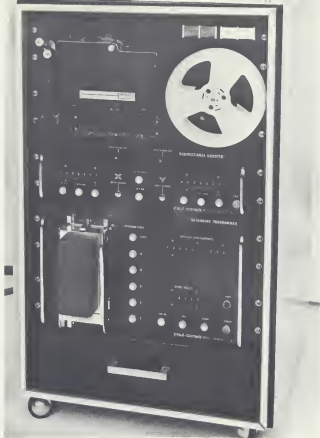
# Codamatic electronics introduced

Two digitizing/recording systems, known as Codamatic and designed to provide manufacturers with fully-edited instructions for the operation of numerically controlled machines, will be displayed by Faul-Coradi, Inc., at NEPCON (National Electronics Packaging Conference) East during its 1969 three-day exhibit starting June 10 at the Philadelphia Civic Center.

The systems include readout and recording electronics, completely interfaced to card punch, tape punch, or magnetic tape, plus printout devices, if desired.

The range of Codamatic systems begins with simple but highly accurate drawing coordinatographs with readout electronics. These may be expanded, through addition of selected equipment modules, to complex precision measuring units with visual display storage and flexible recording electronics.

continued on page two



A new electronics package has been introduced as part of the Codamatic systems. Shown above is the unit which was completed in time for introduction at the NEPCON-East exhibit.

## The Faul Line

Faul-Coradi, Inc.  
Twenty Seven Fennell Street  
Skaneateles, New York 13152

Vol. II, No. 2 Spring 1969

## What is a Codamatic system?

The difficulty of explaining a Codamatic system to one not familiar with this versatile and expandable digitizing equipment is readily apparent.

The word "Codamatic" is simply a contraction of "automatic coding," signifying the ease with which graphic information can be converted to alpha-numeric code on tape or card for use by numerical-control machines and other electronic equipment.

The Codamatic systems are built around the newly-developed electronics components designed by Faul-Coradi, Inc. A complete system contains one of three mechanical devices: Polar Digimeter, Coradograph, or DigiRail digitizers.

The Coradograph, which has been utilized for many years as a high-precision drawing machine, is adapted to Codamatic systems I through VI (depending on resolution required and output devices used) by the addition of an encoder on each axis, thus providing electronic readout to the operator.

This modification does not hamper the Coradograph unit's basic function of drawing with either pencil leads, ball point pens, inking ruling pens, Rapidograph pens, scribing needles, or cut-and-peel knives. Circles and angles can also be drawn with either the beam or the small-circle compass.

Originally designed for surveying, mapping, tool design, printed-circuit layout, isometric drawing, and other

continued on page three



Pricker point microscope is adjusted for parallax by rotating knurled knob which raises or lowers the instrument.


## Pricker point microscope adjustment to eliminate parallax relatively simple

When using the pricker point microscope on a Coradograph coordinatograph, care must be exercised to eliminate parallax, or accuracy will suffer.

The first step in the procedure is to determine in which direction the tool holder height should be adjusted.

This is accomplished by first exposing the pricker point about 0.003 inch to 0.004 inch beyond the protective sleeve. The sleeve is threaded and is easily turned to accomplish this.

Second, place the microscope in the tool holder (be sure pin drops into locating slot), lock both axes, press microscope downwards until it firmly, but gently, contacts the surface of the cut and peel material (previously fastened to table surface). This will result in a hole approximately 0.002 inch in diameter in the art material, which can be viewed through the microscope.

If parallax is not present this image will be presented to your eye:  As you nod your head or turn from side to side, the entire picture will shift slightly. If parallax is present, the hole will move perceptibly within the cross-hair pattern.

Now lift the microscope slowly while moving your head slightly. If you prefer, press the scope down slowly. One direction should cause an improvement toward the optimum picture. Let the scope return to its normal resting position. Now very slowly, either screw or unscrew the knurled ring at the top of the tool holder to bring the height to the optimum point which you have located in the previous step.

The final adjustment is to focus the microscope for the sharpest image. This is done by turning the knurled ring at the top of the microscope until the dot is clearest.

Although this procedure seems quite complicated and lengthy, it actually takes about 30 seconds or less to complete once you are familiar with it. A couple of tries are all you will need to be completely familiar with it.

## Electronics introduced

continued from page one

There are three mechanical units which can be utilized with the system. The first, a Cordagraph drawing machine, is adapted to electronic readout by the simple installation of an encoder on each axis, or it can be expanded to full recording capability.

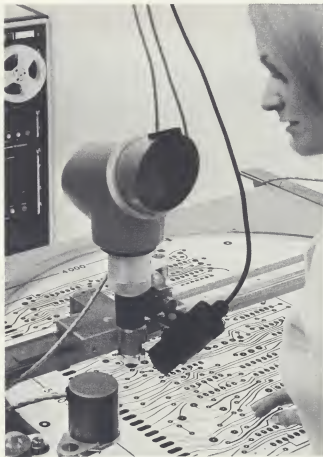
A second unit, which provides extreme portability, is a polar coordinate system, the Digimeter digitizer.

The third unit, and the fastest for automatic conversion of design drawings to fully-edited numerical-control data, is the DigiRail digitizer. It provides digitizing with a keyboard selecting format.

Thus, the Codamatic systems can provide Cartesian or polar coordinates, with readout, recording, and/or print-out capabilities.

The NEPCON East display will feature a Codamatic system with DigiRail digitizer, and a Codamatic system with Coradograph drawing machine on a rotating circular table.

## Thirty power scope

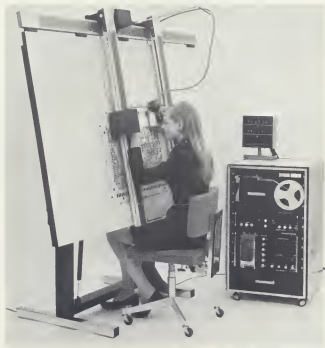


The new Faul-Coradi projection-screen microscope is available in 5X, 10X, 15X, and 30X magnification. Conversion of the Coradograph drawing machine into a high accuracy manual comparator with resolutions to 0.0001 inch is possible with this device. Two of the magnification powers are built into the microscope and are utilized by inverting the lens. The other two are brought to use by dropping a 3X magnifying glass into position over the scope.



## What is Codomatic?

continued from page one



*The Codomatic VIII system*

precision art work, the Coradograph unit's output will now produce coordinates from drawings.

Codomatic systems I and II provide electronic readout only. With Codomatic systems III through VI, output can be recorded manually, or via simultaneous digital electronic readout and recording. The output can be fed to magnetic tape, card punch, electric typewriter, or tape punch.

The Coradograph drawing machine, with an optically flat backlighted ground glass surface, is available in a variety of sizes and shapes, ranging from 20-inch-square to 79-inch-by-52-inch rectangular tables, including rotating circular tables.

Depending on the accuracy desired, resolutions from 0.001 inch to 0.0001 inch are possible with repeatability of from 0.0008 inch to 0.0004 inch.

Codomatic VII features the Polar Digimeter unit, a portable, yet extremely accurate digitizer. Conversion of graphic to numerical information is accomplished with polar coordinates. Thus the ease with which the Digimeter digitizer can be placed anywhere on a drawing surface and moved from point to point, makes it particularly suitable where flexibility, speed, and accuracy are necessary.

For greatest flexibility in production situations where fast turn-around capability is required, the Codomatic VIII system, with DigiRail digitizer, is recommended.

It offers the operator variable program data output; expandability to three-axis recording; event counter; page-printed data output, with or without simultaneously punched paper tape or cards, or magnetic tape recording; and grid round-off or grid recognition. A Codomatic VIII system also will interface either with on-line or off-line computers for perimeter, area, and other arithmetic data calculations.

Edited data is issued by this system, thus permitting direct tooling for numerical-control machines or immediate production of artwork or negatives with an automatic drawing machine, e.g., the Paul-Coradi Coradomat 21 automatic art work generator.

What is Codomatic? In essence, it's an electronic system for conversion of graphic information into complete and fully-edited numerical values which an N/C system can understand.

## NEPCON East

The NEPCON (National Electronics Packaging Conference) East will open June 10 for a three-day exhibit at the Philadelphia Civic Center in Philadelphia, Penn.

Faul-Coradi, Inc. will display two new Codomatic systems, including a Codomatic V system with a 32-inch rotary table, and a Codomatic VIII system with page-printed data output.

In addition to the exhibits, NEPCON will feature 11 seminars and 12 technical sessions plus a symposium. The sessions will begin each day at 8:45 A.M. with the exhibit area to open from 11:30 A.M. to 6:00 P.M. The seminars will take place from 1:00 P.M. to 6:30 P.M.

Complimentary tickets can be obtained from Faul-Coradi.

## Personalities

Because this issue of *The Faul Line* features Codomatic systems, it is only appropriate that we spotlight sales engineer Donald A. Morin, the company's prime salesman of this new line.

Don joined Faul-Coradi in October 1968 just prior to the introduction of the Codomatic systems. Previously, he had worked as a field engineer for several electronic companies.

A native of Danielson, Conn., where he completed his secondary education, Don spent four years as a crew chief in the Air Force where he trained as an electronics specialist. The service introduced him to radar, radio, and computers, so upon discharge, he joined Philco Corp. as a field engineer working on the Air Force's SAGE (Semi-Automatic Ground Environment), a primary U.S. defense against surprise attack.



After two years with Philco, Don joined Burroughs Corp. where he served as a field engineer on computer and data processing equipment for the next four years. In 1966, he went with Beckman Instruments, Inc., a medical instrument company, where he instructed doctors and nurses in the use of new Beckman products.

After two years with Philco, Don joined Burroughs Corp. where he served as a field engineer on computer and data processing equipment for the next four years. In 1966, he went with Beckman Instruments, Inc., a medical instrument company, where he instructed doctors and nurses in the use of new Beckman products.

Besides selling Codomatic systems for Faul-Coradi, Don handles customer training and coordinates technical aspects of vendor procurement of input/output devices.

With his wife and five daughters, Don resides in Liverpool, N. Y.

**The Fine Line**  
Faul-Coradi, Inc.  
27 Fennell Street  
Skaneateles, New York 13152

## ADVERTISING SCHEDULE for SUMMER and FALL

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PHOTOGRAMMETRIC ENGINEERING	1	page
JOURNAL OF GEOPHYSICAL RESEARCH	1	page
MODERN MACHINE N/C GUIDEBOOK	1	page



DO YOU CRY A LOT  
when X<sup>n</sup> equipment produces X?

**faul · coradi**  
**CODAMATIC**  
Digitizing/Recording Systems

... optimize the N/C equipment you have,  
to produce the results you should be getting!

COMPLETE, FULLY EDITED, ENTIRELY USABLE INSTRUCTIONS are issued by Codamatic Systems, via tapes or cards, to any numerical-control machine. Program errors are correctable before release to recording, through digital readout/restatement capability.

CODAMATIC SYSTEMS ARE EXPANDABLE from basic X, Y readout/recording for measuring, drawing, cutting (by adding selected equipment modules) to ultimate • CRT display of interpolated data and/or graphics • 3- or 4-axis recording—X, Y, Z, R, R, R conversion to X, Y • 2,000-character CRT capacity • Full keyboard command • Scale, perimeter, area, volume, other calculations.

OPTIMIZE PRESENT AND FUTURE N/C EQUIPMENT with a Faul-Coradi Digitizing/Recording System. For detailed information, write, wire or phone:



**faul · coradi inc.**

27 Fennell St., Skaneateles, N.Y. 13152 U.S.A.

TEL. 315-685-5761 CABLE: Faul, Skaneateles, N.Y., U.S.A.

We Service our Equipment. • Representation from Coast to Coast.



## Faul-Coradi Signs Financial Accord with Columbian Rope Co.

Faul-Coradi, Inc. has entered into a financial agreement with the Columbian Rope Co., of Auburn, N. Y.

According to Thomas L. Faul, president of Faul-Coradi, Columbian Rope has made a sufficiently substantial investment in the firm's ownership to make possible significant expansion in research development, production staffs and the physical plant.

The agreement with Columbian Rope relieves key technological experts from many administrative burdens, therefore allowing additional time for technical, interpretive and innovative pursuits.

Executive responsibility remains in the hands of Faul, who will continue as chief executive officer. All other

Faul-Coradi executives both in Skaneateles, N. Y. and in Zurich, Switzerland, will remain in their respective posts.

Three of the seven members of the Faul-Coradi, Inc. Board of Directors will be Columbian Rope officials. Frank R. Metcalf, Columbian's President, will serve as Board Chairman of Faul-Coradi.

As a result of the new financial agreement with Columbian Rope, Faul anticipates faster deliveries of improved equipment, an all-out research and development effort, and expanded communications throughout the entire distribution chain.

(see photo story on page 2)

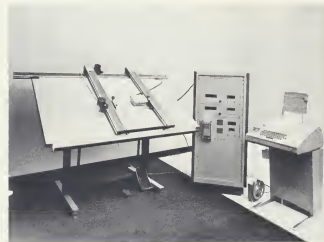
Faul-Coradi, Inc.  
27 Fennell Street  
Skaneateles, New York 13152

Volume 2, Number 1  
Winter 1969

# The Faul Line

## DigiRail Codamatic System Introduced

A computer system, or even more broadly, an electronic N/C system, is capable of doing many things, if it is spoken to in its own language. So far, the difficulty in computerized drafting or drilling equipment has been telling the N/C system why and how it should do the job.



The DigiRail Codamatic

The DigiRail Codamatic translates terms that are familiar to the operator into terms that are familiar to the N/C system using a language which it can understand.

Aside from converting graphic information into numerical data, which is visually displayed while the work is in progress, the unit is capable of other functions. Among them are; variable program data output, expandability to three or four axis recording, page-printed data output (with or without simultaneously punched paper tape recordings), grid round-off, grid recognition, or automatic time interval recording, expandability of scale, perimeter, area and other necessary arithmetic data calculations.

A few typical uses for the DigiRail Codamatic system include; drawings, schematics, gridded design sketches, mapping and building, lofting, numerically controlled drill tapes, machine tapes, statistical data, medical and recorder chart analysis, atomic film trace measurement, and reduction of existing graphic information to numerical data for compact storage.

A production unit of the DigiRail Codamatic will be unveiled at the ASP-ACSM Convention, in Washington, during March.

A pamphlet describing the new system is available to anyone who asks. (See page four for other pamphlets available).

It's been a short 82 years...

## Coradi, then Faul-Coradi, and now Faul-Coradi, Inc.

Incorporated only nine years ago, Thomas L. Faul Associates first secured a contract with G. Coradi, Ltd., of Zurich, to become the exclusive distributor in the U.S.A. for that firm's precision plotting and reading equipment. This equipment enjoys wide applications in general industry, computer centers, surveying, engineering, geology, and other areas demanding very high degrees of accuracy.

The Coradi firm had been founded in 1887 by G. Coradi, one of the finer precision-instrument makers and mathematicians of his day. He was one of the inventors of the planimeter, a mechanical integrating device capable of computing the area of any regular or irregular plan surface, merely by tracing the periphery of that surface. The planimeter has been extensively copied, and has become a universally employed instrument. However, the Coradi firm still retains its reputation for making the finest compensating planimeters in the world.

### Invention of the Coordinatograph

G. Coradi also invented and built the only quadruple harmonic analyzer ever made. This extremely complex instrument is capable of separating any pulsing vibration (e.g., a musical note) into its primary tone, overtones and undertones, pinpointing the origin of each and making it subject to individual analysis.

Another early Coradi invention, the coordinatograph, began as a mechanical device used for mapping and precision plotting of land surveys. With time it found many applications in industrial chart making and the design and construction of precision comparator and shadow-graph charts.

### Faul merges with Coradi

In the last ten years, new generations of the coordinatograph have found important applications in electronics, in such key functions as the drafting of miniature circuit patterns of great complexity, the conversion of graphic information into computer-digestible data, and the automatic plotting, drafting and re-drawing of graphic data.

## Six Treck Seminars Set

As outlined by Louis J. Parker, senior vice-president of Treck Photographic, Inc., and Wolfgang Wagner, sales manager of Faul-Coradi, a series of seminars, describing the many uses of Faul-Coradi equipment, will occur this Spring.

The tentative schedule for these meetings is: Boston (March 26-27), Philadelphia (April 2-3), Jacksonville (April 9-10), Dallas (April 16-17), San Francisco (April 23-24), and Chicago (April 30 - May 1).

Speaking at these one day affairs will be the president of Faul-Coradi, Thomas L. Faul. In addition to discussions, the seminars will include demonstrations and instructive films. Readers of the Faul-Line are urged to contact the Treck store nearest them, or Faul-Coradi directly, for further details regarding the seminars to be held in their locale.

It is in the development of the latter generations of Coradi equipment that Thomas L. Faul has participated as analyst and co-inventor.

Taking to Zurich a broad product design experience and knowledge of advanced engineering concepts, he found immediate rapport with Coradi engineers.

Within a few years, the original distributor contract had evolved into a corporate merger operating internationally under the present name, Faul-Coradi, Inc.

### Faul-Coradi and Columbian Rope

Under this new corporate banner, Thomas L. Faul decided to further expand his base of operations. He sought and received adequate financing with a national corporation having its headquarters in nearby Auburn, New York.

Consequently the financial accord reached between Columbian Rope Company and Faul-Coradi has been brought about this past year.

With the infusion of new capital, Faul-Coradi, Inc. will be able to move ahead into new fields of marketing endeavors.



Robert C. Soderberg (on the left), Vice-President of the Columbian Rope Company, is seen discussing a moiré pattern with Thomas L. Faul, President of Faul-Coradi, Inc. The pattern, produced by Faul-Coradi equipment is used for high precision electronic measuring. Columbian Rope and Faul-Coradi have recently entered into a financial agreement which will allow Faul-Coradi to further develop such systems for sophisticated high-speed precision electronic equipment.

## ASP-ACSM Convention Plans

In early March, 1969, Faul-Coradi will once again display its fine line of equipment to the members of the American Society of Photogrammetry and the American Congress on Surveying and Mapping.

The ASP-ACSM convention, to be held at the Washington, D. C. Hilton Hotel, from March 9th through March 14th, will feature the firm's newly announced DigiRail Codamatic.

Faul-Coradi's assigned space, Booths 140-143, will also feature a polar digimeter with readout. The movie described on page three, entitled "21," will be shown every half-hour during the show.

The ASP-ACSM show has proven to be quite successful for Faul-Coradi and that is one of the motivating factors in using twice the space it was allotted at last year's convention.

Julie Andrews' new competition...

## Coradomat 21 System Star of New Movie

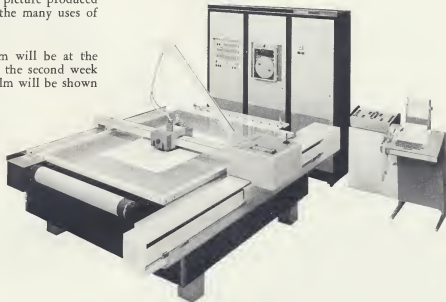
"21"

Sounds like a fancy New York City restaurant, doesn't it? Not quite.

Instead it's the title of a new motion picture produced by **Faul-Coradi**, which fully describes the many uses of the Coradomat 21 System.

The first public viewing of the film will be at the ASP-ACSM Convention, scheduled for the second week of March in Washington, D. C. The film will be shown every half-hour at booths 140-143.

The Faul-Coradi Coradomat 21



### From the Stars to Geometry and Back

"21" will show the various uses of the system; from creating geometrically perfect designs to mapping constellations. Wherever a number of precision drawings are to be produced automatically, at a high degree of accuracy, and by various working methods (e.g. scribing, cut and peel, or light-beam drafting), the "21" system fits the bill.

The film points out the various components of the "21" from input and programming to an actual series of geometric designs being drawn by the system.

The interchangeability of the various pens, scribes, knives, etc. which make the "21" such a versatile system are referred to as a 75 station light head.

### A System With Many Applications

Characteristics inherent within a "21" installation are also alluded to: a) simplicity of operation, b) facilities for both types of operation on the same instrument (e.g. automatic drafting and the measuring of existing drawings), c) selection of scale as desired, independently for the two coordinate axes, d) selection of coordinate point of origin at will and e) multi-purpose interpolator for linear, circular arc and curvilinear interpolations.

### Strauss and Mendelsohn

Produced in color and using various musical scores, the film points out that the "21" is the system of the future and that it is available for use now.

If you don't get to see the picture at either the ASP-ACSM Convention, or the TRECK seminars (both mentioned elsewhere in this issue), don't hesitate in contact-

ing **Faul-Coradi**. They will be more than glad to furnish a print for a specified time for viewing anywhere in the United States.

## Personalities

Wolfgang C. Wagner, the company's sales manager, was born on December 7, 1940 in Hamburg, Germany. He immigrated to the United States in 1951 and became a citizen five years thereafter.

He attended elementary and high schools in the Syracuse, New York area and studied Business Management at the University of Texas at Austin. Later he served with the U. S. Army in South Korea for thirteen months and upon receiving his discharge he was employed by the Sun-X International Corporation of Houston.

Having relocated to the Upstate New York area, he

was then employed by the N. A. Taylor Company of Gloversville which manufactures boating equipment and plastic products. At Taylor, Mr. Wagner's duties included the field testing and market applications of new products.



In January of 1967, Mr. Wagner came to work for Thomas L. Faul Associates, Inc., as Assistant Sales Manager. In May of 1968, he was named Sales Manager. Mr. Wagner's heavy schedule includes many trips around the country to discuss the **Faul-Coradi** line in addition to which he oversees the firm's sales and advertising programs.

**The Faul Line**  
Faul-Coradi, Inc.  
27 Fennell Street  
Skaneateles, New York 13152

## Advertising Schedule Set for First Quarter of 1969

Faul-Coradi is expanding its advertising program in order to delineate the advantages of its broad product line. Listed below are the advertisement placements for the months of February, March and April.

In the next issue of Faul-Line, we will announce our advertising schedule for May, June and July.

### FEBRUARY

MACHINE DESIGN	2/3 page
DESIGN NEWS	1/3 page
COMPUTERWORLD	1/3 page
ELECTRONIC PACKAGING & PRODUCTION	1/3 page

### MARCH

MACHINE & DESIGN	1/3 page
AUTOMATION	1/3 page
IND. EQUIPMENT NEWS	1/9 page
PHOTO CHEMICAL ETCHING	1/3 page
REPROGRAPHICS	1/3 page
SOLID STATE TECHNOLOGY	1/3 page

ELECTRONIC PACKAGING & PRODUCTION	1/3 page
PHOTOGRAMMETRIA	1 page
PRODUCT ENGINEERING	1/3 page
DATAMATION	1/3 page
JOURNAL OF GEOGRAPHICAL RESEARCH	1 page

### APRIL

MACHINE DESIGN	2/3 page
DESIGN NEWS	1/3 page
IND. EQUIP. NEWS	1/9 page
PHOTO CHEMICAL FABRIC.	1/3 page
GRAPHIC SCIENCE	1/3 page
SOLID STATE TECHNOLOGY	1/3 page
PLAN & PRINT	1/3 page
ELECTRONIC PACKAGING & PRODUCTION	1/3 page
PHOTOGRAMMETRIC ENGINEERING	1 page
PHOTOGRAMMETRIA	1 page
JOURNAL OF GEOGRAPHICAL RESEARCH	1 page

### Editors Note:

We at Faul-Coradi are proud to announce that with this issue of Faul-Line, this newsletter will be published four times per year. If any current subscriber wishes to have a fellow employee of his firm receive Faul-Line, please have him return the coupon below to Faul-Line, 27 Fennell Street, Skaneateles, New York 13152. Thank you.

Name \_\_\_\_\_

Position \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

Who Suggested Faul-Line to you? \_\_\_\_\_

## Brochures Available

Four extensively prepared booklets, and a series of reprints (courtesy of The Journal of Photochemical Etching), are currently available from Faul-Coradi, Inc.

An eight-page fold-out color pamphlet, entitled "Point of Origin," describes the automatic conversion of design drawings into numerically controlled data by using the recently introduced DigiRail Codamatic.

The Faul-Coradi electronic Coordinate Measuring Unit, The Digimeter, is fully explained in both theoretical and practical concepts in a fully illustrated twenty page booklet.

The Coradomat 21, currently in use around the world is featured in a twenty-eight page black and white presentation. Its little brother, the Coradomat 15, has its own booklet, too, only twelve pages in length.

Finally, a forty page reprint featuring articles which have appeared in the PC-E Journal is also available.

# The Faul Line

## FAUL ASSOCIATES ANNOUNCES NEW TIME-SHARING PROGRAM

A new program involving time sharing of a fully automatic drafting, plotting and measuring machine capable of highly accurate point plotting was announced here today by Thomas L. Faul Associates, a leading manufacturer of precision drafting equipment. Time on one of Faul Associate's large, computerized "Coradomat 15" automatic artwork generators normally used in surveying offices, computing centers, industrial planning offices and electronic firms is being made available to anyone who has a need to use this complex machine.

It is expected that the new program will be of particular interest to companies whose present needs do not require full-time use of a high precision drafting machine and to customers on the waiting list for a "Coradomat" who wish to perfect their internal data preparation and procedural methods pending the arrival of their own "Coradomat" or who simply just have work that needs to be done before their own machine arrives.

All companies desiring to use the "Coradomat 15" located at Faul's new facilities in Skaneateles, N. Y., will be able to do so by sending numerical instructions, drawings or tapes by mail, or, if faster service is wanted (say, overnight) Faul is prepared, on a contract basis,

Computer cabinets and readout console of "Coradomat 15"



to send and receive data via a high-speed, tape-to-tape system. Under this tape system, data is transmitted from distant points over conventional telephone channels connected to external storage and conversion facilities.

Thus, if a customer using this system desired to obtain a drawing, he would transmit instructions and a tape would be punched out at Faul's Skaneateles facility, converted, run-off on the "Coradomat 15" and the final material immediately put in the mail to the customer.

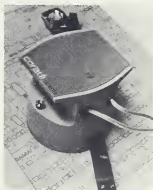
All of the "Coradomat 15" functions such as construction of pencil proofs, drawing with a knife, drawing with a ballpoint pen, drawing with ink, drawing with jewel scribes, cut and strip work or drawing with a photobeam on film or photo plate are available to customers time sharing this machine.

All charges for time sharing are based on the number of hours of actual use of the "Coradomat 15"—there being a minimum charge of one hour for any single order.



## NEW DIGITIZING INSTRUMENT INTRODUCED BY THOMAS L. FAUL ASSOCIATES, INC.

An instrument that represents a significant breakthrough in converting graphical information into digital form has been developed by Thomas L. Faul Associates and Coradi of Zurich, Switzerland, manufacturers of precision drafting equipment. Known as a polar digimeter, it was presented to the public for the first time at the American Congress on Surveying and Mapping—



"Type DM8" polar digimeter

This is the first issue of "The Faul Line." We at Thomas L. Faul Associates have long felt that we have lacked an adequate communications link with the many dealers and distributors handling our products. "The Faul Line" is an attempt to remedy this situation. We plan to publish on a quarterly basis to begin with but, once our newsletter is established, we hope to publish more frequently.

The aim of this newsletter will be to create greater understanding about our precision equipment, to keep you abreast of the new innovations we are constantly developing, and, generally, to focus attention on things we feel you should know about.

American Society of Photogrammetry (ASCM-ASP) Convention in Washington, D. C. in March.

Designated "Type DMB", the polar digimeter is a breakthrough because it is portable and yet extremely accurate. It is expected to find extensive use in the fields of surveying, engineering, construction, electronic manufacturing and tool manufacturing where plans, drawings, diagrams, paper patterns, production blanks, etc. play an important role and where the need to convert such graphical information into digital form has greatly expanded because of an ever increasing dependence on electronic data processing.

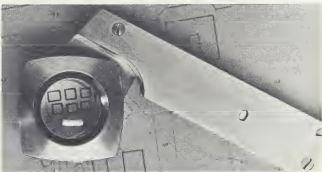
The "Type DMB" polar digimeter has a polar scanning head—thus, it delivers polar coordinates. This, plus the ease with which it can be laid anywhere and moved from point to point by the operator makes it particularly suitable where cadastral plans, technical drawings or other artwork are to be measured for subsequent area computations, or for x, y coordinate evaluation.

A separate control desk with the operating elements and a control cabinet make up the electronic package



The "DMB" in action

Close-up view of "DMB" tracing lever and lens



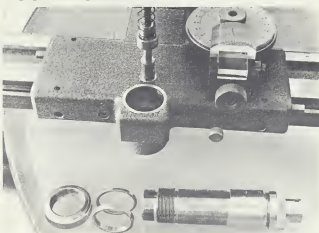
for the polar digimeter. A 20-decade keyboard is located on the control desk which enables the operator to insert any data, definition, information or automatic plotter operational instruction desired together with coordinate figures. The control cabinet contains the entire electronic system which is built up of plug-in printed circuit boards, containing fourth generation integrated circuit elements.

Operating the "DMB" is quite simple. The scanning head is placed, in a locked condition, on the plan to be measured and moved to a desired position. The calibration radius is then selected on the control panel, the preselection unit set at zero for angle and a storage key pressed. The scanning head is unlocked, the tracing lens moved to the points to be measured and at each point a foot switch is activated causing transmission of each new polar coordinate.

The "Type DMB" polar digimeter can be supplied with output connections for various tape or card punches. Data output can be produced containing up to 20 digits from the keyboard and up to 6 digits for each of the two coordinate values.

## TECHNICAL TIPS

### SELECTION OF CORRECT TOOL HOLDER RING IMPORTANT FOR PROPER FUNCTIONING OF "CORADOGRAPH"



Selection of the correct ring for the tool holder of the "Coradograph" is very important

Thomas L. Faul Associates' "Coradograph" is a precise drafting machine which is approximately ten to twenty times more accurate than normal drafting equipment. It is not particularly difficult to operate. However, there are some "tricks-of-the-trade" that have been discovered as the result of field use.

One of the major problems that besets new owners of the "Coradograph" is the selection of the proper ring to go around the tool holder which then is slid into a slot on the Y beam. There are two rings supplied, one wider than the other and without them it would be impossible to complete parallax adjustments. (See photograph).

In many instances new owners of "Coradograph" will use the wrong ring, will improperly insert the ring on the tool holder and worst of all will insert both rings on the tool holder at the same time.

What, therefore, is the proper procedure for using these two rings? For most purposes, the thinner ring should be used—when using paper, masking film, etc. The only time the thicker ring should be used is when the "Coradograph" owner is working with a glass plate or other thick material and it is imperative that the tool holder rest higher in order to complete proper parallax adjustment.

No matter which ring is being used, proper use involves placing the ring over the bottom end of the tool holder and sliding it to the top of the tool holder. Then, the tool holder is placed in its slot in the Y beam. It will then be an easy matter to complete the necessary parallax adjustment.



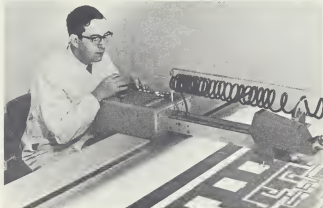
### PEOPLE BEHIND THE SCENES

Here are a couple of the people behind the scenes at Faul Associates. Shown is Edith Angus, secretary and to her right, Peg Houston, billing clerk. Marge Van Horn, third member of the triumvirate occupying this corner at our new Skaneateles office is camera shy.



## PERSONALITIES

(Ed. Note: It is important to know about the products manufactured by a corporation, but it is our feeling that it is equally as important to know something about the background of the personalities behind these products. Thus, with each issue of THE FAUL LINE we plan to present a biographical sketch of an important member of our company. We begin with the president.)



Mr. Faul at work at the "Coradomat"



**THOMAS L. FAUL**, president, born November 26, 1923 in Prague, Czechoslovakia, studied mechanical engineering 1941-1943 at the University of London, London, England and received an Inter. B. Sc. Studies were interrupted by Military Service 1943-1945 in the British Army. Studies continued 1946-1949 at the University of Toronto, Mechanical Engineering Department. Graduated with First Class Honours in Mechanical Engineering, April 1949.

**1949-1950** Design Engineer, E. B. Eddy Co., Hull, Quebec, Pulp and Paper Machines. (Two new patents developed and secured.)

**1950-1952** Assistant Plant Engineer, in charge of production tooling, P. L. Robertson Co. Ltd., Milton, Ontario, Canada, cold forging plant manufacturing fasteners of all kinds.

**1952-1953** Sales Engineer, Jobborn Mfg. Company, Ltd. Hamilton, Ontario, automotive service tool manufacturer for Ford Motor Company.

**1953-1954** Project Engineer, Dilworth Enbank Consulting Engineers, in charge of setting up design group for the construction of a Mach 4.5 Supersonic Wind Tunnel for the Canadian Government, now operating in Ottawa.

**1954-1957** Special Lecturer, Department of Mechanical Engineering, University of Toronto, responsible for a number of thermodynamics experiments in Mechanical Laboratory of 3rd and 4th year students.

**1957** Received M.A. Sc. Degree in Thermodynamics from the University of Toronto.

**1957-1959** Chief Engineer, Nautaloy Products Inc., Auburn, New York, responsible for product design, production and manufacturing personnel of this Marine Hardware Manufacturer.

**1959** Opened his own Engineering Product Design Consulting office under name Thomas L. Faul Associates, Inc., Skaneateles, New York, specializing in marine hardware and naval architecture of pleasure craft. This activity continues to date. The principal clients today are Century Boat Co. and Aqua Marine Mfg. Co. Inc. Development of a computer controlled design and drawing systems was started in 1962 and continues at an increasing pace.

## CHRONOLOGICAL HISTORY OF FAUL ASSOCIATES

**1957** Thomas L. Faul becomes chief engineer of the former NAUTALOY COMPANY of Auburn, New York.

**1959** Mr. Faul leaves NAUTALOY to form his own company in basement of his home in Mottville, New York.

Original function of the new company is to design boats and marine products for leading boat manufacturers and automotive accessory product manufacturers. This is still done today.

**1960** Mr. Faul moves home and business to East Lake Road in Skaneateles.

First year sales set at \$27,000.

**1961** Mr. Faul again moves home and business. This time into home built for him on West Lake Road. New home contains ground floor studio for expanding business.

Sales double over previous year.

**1962** Development of computer-controlled design and drawing systems initiated.

Sales again double that of previous year.

**1963** Expanding business forces Mr. Faul to find separate facility for his company. Opens offices and manufacturing plant at 9 Logan Street in Auburn.

Contract signed with G. CORADI LTD. of Zurich, Switzerland for the purpose of marketing and selling precision plotting and reading equipment for use in general industry, computer centers, surveying, engineering, geology, etc., on an exclusive franchise in the United States, and manufacture and sell supporting tables and structure used to carry the precision components, as well as all necessary or desired components, parts and replacements.

Faul Associates incorporated in the State of New York. The company becomes U. S. distributors of the NESTLER COMPANY of Lehr/Schwarzwald, for the distribution of the NESTLER drafting equipment, drafting boards and drafting machines.

Sales double.

**1964** Separate manufacturing facilities opened three miles west of Skaneateles, N. Y.

Sales double.

**1965** "Digimeter" "Coradograph," and "Coradomat" redesigned by Faul Associates.

Sales double.

**1966** Contract signed with GENERAL FIREPROOFING COMPANY for the design, styling and engineering concepts of engineering furniture by Faul for GF.

Sales double.

**1967** Faul outgrows Auburn facilities and move made to new offices at 27 Fennell St. in Skaneateles. Manufacturing plant maintained just outside Skaneateles.

Sales reach nearly \$1,000,000.

**1968** (4 mos.) "Coradomat" set up in new facility. Sales continue to expand. Total number of contributing employees reaches 133.



Thomas L. Faul Associates, Inc.  
27 Fennell St.  
Skaneateles, N.Y. 13152



## REVIEWING OUR COMMUNICATIONS PROGRAM

Faul Associates has an expanding advertising and public relations program in force in an effort to delineate the advantages of our products, promote the image of the company, etc.

So that you may look for our advertisements, the schedule for April and May is outlined below. As of now, we have nothing scheduled for June and July, which is normal procedure, but pick up again in August. We will list the schedule for August and beyond in our next "Faul Line."

From an editorial or public relations viewpoint, we have several things on the fire. This newsletter is one of them. Our objective for this newsletter is outlined on the front page.

We certainly hope everyone has had the opportunity to read the huge 9-page article on the "Coradomat" in the March issue of PHOTO-CHEMICAL-ETCHING. This was the fourth of a series of articles Tom Faul is doing for this magazine concerned with the "Coradograph" and the "Coradomat." We have combined the four articles published to date into one reprint using the March, 1968 cover of PC-E as the reprint's cover. It is quite effective and available upon request. It proved quite popular at the ASCM-ASP Convention we displayed at in Washington in March.

Further, the June issue of Photo Chemical Fabrication, a new sister publication of REPROGRAPHICS (or an issue shortly thereafter) will carry an article on the use of a 32-inch rotary "Coradograph" by the David W. Mann Company, of Burlington, Mass. (a division of the GCA Corporation) manufacturers of precision equipment for construction of microcircuit photomasks. And, an early summer issue of ENGINEERING GRAPHICS will carry an article on our new "Type DMB" polar digimeter which we introduced at the ASCM-ASP Convention show mentioned above.

PLAN and PRINT will run a feature on our "Coradograph" and an article on our "Coradomat" in an early summer issue devoted to a "focus on drafting machines." The May issue of GRAPHIC SCIENCE will include an item on the "Coradomat."

Two announcements are being made to trade magazines in general — one dealing with Faul's new time-sharing program and one dealing with the new polar digimeter (both items discussed in this newsletter). So, be on the lookout for these.

We are always open to suggestions concerning our communications program. We are particularly interested in hearing about installations that might form the basis of an article for a trade magazine. So, let's hear from you.

### ADVERTISING SCHEDULE APRIL-MAY 1968

PUBLICATION	SIZE
<b>APRIL</b>	
MACHINE DESIGN	1/2 page
DESIGN NEWS	1/4 page
PRODUCT DESIGN & DEVELOPMENT	1/9th unit
AUTOMATION	1/2 page
NEW EQUIPMENT DIGEST	1/9th unit
REPROGRAPHICS	1/2 page
GRAPHIC SCIENCE	1/2 page
ENGINEERING GRAPHICS	1/2 page
PC-E	1 page
<b>MAY</b>	
PC-E	3 cols. full
PHOTOGRAMMETRIC ENGINEERING	1 page

### FAUL ASSOCIATES PARTICIPATION AT ASP-ACSM CONVENTION IN WASHINGTON PROVES HIGHLY SUCCESSFUL

The ASP-ACSM convention proved to be an excellent show for Faul Associates. We had thirty feet of space; of the thirty feet, ten feet was allocated to Wang Laboratories and twenty feet to Faul.

We displayed two new products at the show — a digitized Nestlerrail (more on this new piece of equipment in our next newsletter) and a polar digimeter with readout. The complete display included a 64" X 52" "Coradograph," a "Nestlerrail" digitizer with readout and recording system, the digimeter with readout, and planimeters.

Attendance at the show was fantastic; the leads received were better than in any previous year. Personnel in attendance were Tom Faul, Wolfgang C. Wagner, Faul Associate's Northeastern District Sales Manager and the personnel of the Paddock-Joslow Company.

The show was such a success that Faul Associates will rent thirty feet of space in 1969, and will display its own products in all thirty feet.

In order that we may quote you on the specific equipment suitable to your application, please fill out the back side of this card and forward to:

SALES DEPARTMENT  
FAUL-CORADI, INC.  
27 Fennell Street  
Skaneateles, New York 13152

To insure our receipt of your request for quotation or prices, we request that you forward this card in a properly addressed envelope by first class mail.

**faul · coradi INC.**

FIRST CLASS  
PERMIT No. 64  
Sec. 131.23 P.M.  
Auburn, N. Y.

**BUSINESS REPLY MAIL**

No Postage Stamp Necessary if Mailed in the United States

Postage Will Be Paid By

**faul · coradi INC.**

27 FENNELL ST. SKANEATELES, N.Y. 13152

FIRST CLASS  
PERMIT No. 64  
Sec. 131.23 P.M.  
Auburn, N. Y.

**BUSINESS REPLY MAIL**

No Postage Stamp Necessary if Mailed in the United States

Postage Will Be Paid By

**faul · coradi INC.**

27 FENNELL ST. SKANEATELES, N.Y. 13152

REQUEST FOR QUOTATION

Name \_\_\_\_\_ Company \_\_\_\_\_

Address \_\_\_\_\_

Phone \_\_\_\_\_

\_\_\_\_\_ Please forward quotation on the following equipment:

CORADOGRAPH Model # \_\_\_\_\_ CODAMATIC SYSTEM # \_\_\_\_\_

DIGI-RAIL \_\_\_\_\_ Other \_\_\_\_\_

CORADOGRAPH Price List only \_\_\_\_\_

My general application will be: \_\_\_\_\_

TO REQUEST ADDITIONAL  
LITERATURE, PLEASE CIR-  
CLE REQUIRED PIECES ON

"LIST OF AVAILABLE  
LITERATURE" AND RETURN

TO:

FAUL- CORADI, INC.

27 FENNELL STREET

SKANEATELES, N. Y.

13152

Name \_\_\_\_\_

Company \_\_\_\_\_

Current \_\_\_\_\_

Address \_\_\_\_\_

Phone \_\_\_\_\_

\_\_\_\_\_ Change of Address

\_\_\_\_\_ Place on Mailing List

\_\_\_\_\_ Have Representative Call

\_\_\_\_\_ Forward Name & Address of nearest Rep.

\_\_\_\_\_ Other \_\_\_\_\_

BE SURE TO INCLUDE YOUR  
NAME AND ADDRESS WITH  
YOUR REQUEST.

Name \_\_\_\_\_

Company \_\_\_\_\_

Current \_\_\_\_\_

Address \_\_\_\_\_

IF OUR "LIST OF AVAIL-  
ABLE LITERATURE" IS NOT

Phone \_\_\_\_\_

IN YOUR POSSESSION,

\_\_\_\_\_ Change of Address

\_\_\_\_\_ Place on Mailing List

PLEASE DO NOT HESITATE

\_\_\_\_\_ Have Representative Call

TO REQUEST SAME BY

\_\_\_\_\_ Forward Name and Address of nearest Rep.

USING THE ATTACHED

\_\_\_\_\_ Other \_\_\_\_\_

CARDS,

# faul · coradi inc.

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